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Bulletin

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THE INTERPRETATION OF THE NEUROSES

BIOLOGIC, PATHOLOGIC AND CLINICAL CONSIDERATIONS, TOGETHER WITH AN EVALUATION OF THE PSYCHOGENIC FACTORS *

FRANCIS X. DERCUM, M.D.

PHILADELPHIA

Of recent years, views and theories have been expressed concerning the neuroses which, if allowed to stand, would hopelessly and permanently confuse and obscure the subject. The advent of psychanalysis has led the disciples of Freud to an abandonment of clinical methods. Gross facts of structural abnormalities and of actual physical illness are ignored as though these facts had no existence. The mental symptoms of the patient alone are considered, and these are uniformly ascribed to sexual traumas, to repressed complexes, in which the essential rôle is always played by the "libido." Even when freudian theories are not exclusively adhered to, it has become the vogue to assign to every neurosis a psychogenic origin; and writers have not been wanting in recent times who have maintained that a classification of the neuroses is neither possible nor necessary. Let us see how much of truth there is in this position.

It has long been known that fatigue is manifested by a group of symptoms well marked and definite. In order that their character and significance may be more readily appreciated, it may be well to consider briefly some of the facts of normal function. The exercise of function implies a nutritive change, a change which is marked in direct proportion to the degree of the activity. The fact of change is seen in the muscles, the nervous system, the digestive apparatus, the blood, the blood-making organs, the various glands, both of internal and external secretion, and in the other tissues as well.

The most striking and perhaps best known illustration is that offered by the muscles. During functional activity the latter undergo striking chemical changes. Thus, the chemical reaction, which is neutral or feebly alkaline in a muscle at rest, becomes acid, through the production of phosphoric acid, in a muscle that is active; there is also in the active state a greatly increased elimination of carbon dioxid, while the tissue consumes proportionately more oxygen; further, the active muscle contains more water, it yields an increased quantity of extractives soluble in alcohol, a lessened quantity of extractives soluble in water, and lessened quantities of substances producing carbon dioxid, of fatty acids and of creatin and creatinin, and of glycogen. Again, during functional activity the capillaries dilate, the muscle contains more blood, and the blood in its veins differs chemically from that found in its veins when at rest.

Similar facts obtain in regard to the other tissues, though our knowledge of the details is much more meager. Nerve substance, like muscle, when at rest is neutral or feebly alkaline, and when active is acid. The exchange of oxygen and carbon dioxid has not been actually demonstrated, but the facts attending vascular supply and temporary obstruction justify the inference that such changes of necessity take place, while the presence in the blood of the veins of substances the products of retrogressive metamorphosis can have but one meaning. As regards the changes observed in other structures, it may be stated as a general fact that all organs in which periods of rest alternate with periods of activity present striking differences corresponding with these periods.

The changes taking place in nerve cells, muscle and other structures during the exercise of function indicate a consumption of tissue — a consumption which depends directly on increased oxidation. Energy is eliminated as a result of this increased oxidation; further, of necessity, this elimination of energy means loss of substance. Functional inactivity, on the other hand, is accompanied by the restitution of substance. This is the storing up of energy in a latent form. Evidently in order to preserve the physiologic condition — the normal balance — there must be a due proportion between functional activity and rest.

To the foregoing facts must be added the rôle played by the products of tissue waste. It is well known to physiologists that if a frog muscle, which has been completely exhausted by electrical stimulation and refuses any longer to respond, is washed out by injecting into its artery ordinary salt solution, the muscle again reacts to the electrical current and almost as well as before. Evidently the waste products which accumulate in the muscle substance restrain or inhibit the muscular contraction. If it is true that the action of the muscles is thus inhibited, a similar truth doubtless obtains in regard to the action of waste products in other organs, notably in the nerve centers. It thus becomes evident that in fatigue we have to do with two factors: first, the consumption or reduction of substance the result of functional activity, and, second, the impeding of restraining influence of the materials resulting from this reduction.

Further, the substances resulting from the normal exercise of function play an important and beneficial rôle in the economy. They prevent, other things being equal, undue or excessive fatigue. Their probable phys-

* Annual address of the president, read before the Philadelphia Neurological Society, Jan. 26, 1917.

* Because of lack of space, this article has been shortened considerably for publication in THE JOURNAL. The complete article appears in the author's reprints, a copy of which will be sent by the author on request.

iologic action is to induce rest by retarding activity. Thrown into the circulation under normal conditions, they act as sedatives and are among the direct causes of rest and sleep. The excessive exercise of function leads primarily to the excessive consumption of tissue, and under these circumstances waste substances are present in abnormal amount. Instead of a gentle sedative or retarding influence, they now exert a toxic action. They accentuate the weakness and exhaustion and act as irritants and excitants, and, instead of inducing rest, disturb or prevent it. Moreover, excess of function, if persisted in, leads to a perversion of the chemical changes, and thus arises an additional element of toxicity. That metabolism is deranged in states of fatigue is definitely known.[1]

For us, as clinicians, the all important inference from the foregoing considerations is the fact that fatigue is a real, a physical condition, and that it is not of psychic origin. Least of all is it to be explained as an attitude or state of mind the result of infantile sexual traumas.

NEURASTHENIA

In the demands which modern civilization makes on the individual, undue expenditure of energy, an expenditure which results in overfatigue, is of frequent occurrence. Under these circumstances, a condition is established in which neither the normal amount of rest nor food suffices any longer to restore the organism to the equilibrium present in health. Gradually a well defined symptom group, a neurosis with a definite symptomatology, becomes established. Lay persons have long recognized this condition and speak of it as nervous prostration, and to it Van Deusen and later Beard applied the term "neurasthenia," while I myself have suggested, as the equivalent of the latter, the expression the "fatigue neurosis."

The first fact which impresses us is that the patient becomes readily exhausted. He is incapable of the sustained expenditure of energy. This is true whether the expenditure is physical or mental. In keeping with this fact is also that of irritability, of exaggerated response to stimuli from without; that is, along with the lessened capacity for expenditure of energy, there is also a lessened inhibition. The muscles, for instance, rapidly reveal the signs of fatigue; muscular effort very soon exhausts the patient. At the same time there is present a diminished inhibition of the tendon reflexes; quite commonly the latter are exaggerated. Again, the mental phenomena of neurasthenia are those of ready exhaustion. There is a marked diminution in the capacity for sustained mental work. There is difficulty in maintaining the attention; concentration requires a special effort. Apprehension takes place less readily, and there is a marked diminution in the spontaneity of thought. In other words, the patient becomes mentally tired after very little exertion. At the same time, there is a markedly increased irritability, that is, a diminution of inhibition. That the tired man is a cross man is well known. His self-control is diminished. He is easily excited and angered; his emotions generally are easily disturbed.[2]

The man who is chronically tired loses some of his personal force and will power. He becomes unable to decide matters of business with his usual readiness. Difficult and unpleasant matters are deferred. Things which require special effort are put off and remain undecided. Gradually this extends to matters relatively trivial and unimportant. Finally, lack of spontaneity and will power may become frankly associated with habitual uncertainty, hesitation and indecision.

Again, that a person whose nervous system is exhausted should also be morbidly afraid is not surprising; weakness and fear are naturally associated. Fear is a natural concomitant of diminished personal force, uncertainty and indecision. The fear may amount merely to a general feeling of uneasiness or anxiety, and may be more or less continuous; or it may come on in paroxysms, in sudden attacks generalized in character, which I have described as attacks of spontaneous generalized fear.

Neurasthenia presents itself as a well defined syndrome. While the picture is somewhat varied in different cases and often complicated by the appearance of secondary symptoms, its essential and underlying features are always those of chronic exhaustion, a persistent fatigue. There is always present a ready exhaustion, both physical and mental, together with the secondary outgrowths of this condition. The symptoms which I have here outlined are those of an exhaustion affecting an organism otherwise normal; that an entirely normal, non-neuropathic person may from overwork or other nervous overstrain develop nervous exhaustion need hardly be stated. It is this condition to which I have applied the term "neurasthenia simplex," and it is to this condition that the term neurasthenia simplex should be limited.

PSYCHASTHENIA

That the clinical picture must be more or less modified when the organism has been previously neuropathic would seem probable on *a priori* grounds, and this the facts prove to be actually the case. As just stated, a person who is not neuropathic may under given conditions develop nervous exhaustion; if he happens to be neuropathic, special symptoms are developed which by their prominence dominate the clinical picture; indeed, often to such an extent that the factor of the nervous exhaustion may be lost sight of.

The general symptoms resemble those encountered in simple neurasthenia. Lack of sustained effort and spontaneity are here also present, and may become much exaggerated. Together with this the patient has a sense of powerlessness, insufficiency, inadequacy. He is hesitating, irresolute, timid, fearful. He reveals his condition both in his actions and in his mental operations. Merely the idea of having something to accomplish may frighten him, so convinced is he of his powerlessness to achieve a result. He can do nothing like the rest of the world; sometimes he feels that he cannot make a single gesture freely and with ease. This feeling of inadequacy usually becomes exaggerated if the task is new or if the patient happens to be in the presence of strangers or in public. Sometimes this feeling is so pronounced as to lead to discouragement and hopelessness or even to a profound inertia. There is an impairment of the will, uncertainty and doubt, and, added to this, there is a diminished inhibition. The patient is easily upset, excited and disturbed, and he is also the victim of fear continuous or coming on in attacks.

Hesitation and lack of decision may become so pronounced that they develop into a folie de doute, a

1. A consideration of the rôle played by the internal secretions in fatigue would take us too far afield. Suffice it to say that it is alike important and interesting.

2. For a systematic presentation of the subject, the reader is referred to the unabridged reprint of this paper; to the chapter on Neurasthenia in "Nervous Diseases by American Authors," edited by the author, Philadelphia, 1895; to "A Clinical Manual of Mental Diseases" by the author, Philadelphia, 1914, and to "Rest, Mental Therapeutics and Suggestion" by the author, Ed. 2, to be published.

veritable insanity of indecision; weakness of will may lead to a pronounced abulia; and the fears may develop into special phobias, obsessions or anxieties. How some of the latter may arise can be readily understood. For instance, a patient has a spontaneous attack of generalized fear. If he is suffering merely from a simple neurasthenia, that is, if he has not previously been neuropathic, the attack of fear passes off without any after-effects; but if the patient is neuropathic, a pathologic association may be formed in his mind so that the emotion of fear becomes definitely linked to certain relations of the environment. Thus, a patient happens to have a spontaneous attack of fear while alone; immediately there is formed in his mind an association between the attack of fear and the fact of being alone, and a monophobia results. Time will not, of course, permit of further discussion of this interesting subject, but it is necessary to point out briefly the character of those defects of inhibition to which English writers have applied the term insanity with irresistible impulse, the French, obsessions with irresistible tendencies, and the Germans the expression *Zwangsneurose,* compulsion neurosis. Here are included the various tics, tic convulsif and the impulsive movements and actions generally.

The brain, under normal conditions, is constantly eliminating impulses. These impulses are the result of the interaction of the mind — its previously acquired memories, associations and activities — with the environment. These impulses are normally controlled, restrained, inhibited; they may be diffused or they may be directed into special channels. As a rule they are useful to the organism; they may enable it to accomplish a definite object, or they permit the harmless and pleasurable release of energy. If the patient is neuropathic and at the same time neurasthenic, first, inhibition is diminished and, secondly, the discharge takes place in accordance with such pathologic associations as have been formed in the patient's mind. Time will not permit us to trace here the origin of the latter. Suffice it to say that they may be linked with fears and obsessions, with the memory of unpleasant experiences, ideas which excite abhorrence, disgust and dislike, or they may be entirely normal associations which reach the surface with pathologic ease; such, for instance, as the oaths and expletives which the tired man uses but which in neurasthenic-neuropathic states find their way to the surface both out of time and out of place.

The neurasthenic-neuropathic states, I have at various times described under the general caption of the neurasthenoid states, a term which includes the same group of cases to which Janet later applied the term "psychasthenia." Clearly the foregoing considerations enable us to separate out of the group of the neuroses, first the neurasthenic and secondly the neurasthenic-neuropathic states; namely, neurasthenia and — to employ the term of Janet — psychasthenia. Let us now turn our attention to a third, namely, hysteria.

HYSTERIA

Our knowledge of hysteria has been of slow and gradual evolution. The early Greeks believed that the explanation of the phenomena which they witnessed was to be sought in the behavior of the uterus. They believed that during a hysterical attack the uterus becomes detached from its moorings and goes wandering about the body seeking sexual satisfaction. We cannot pause to trace the history of this wandering uterus, which extends from the days of Plato and Hippocrates down to our own time. Suffice it to say that it was revived as late as 1816 by Louyer-Villermay. For us the chief interest in the uterine theory of hysteria lies in the fact that it has served to fasten the name "hysteria," derived from hystera (ὑστέρα), the Greek word for uterus, on the affection. It is interesting to note that while the crude theory of the wandering uterus has been abandoned, ideas as to the sexual origin of hysteria have persisted, in modified forms, to the present day. Unsatisfied passion, unrequited love, genital irritation and, lastly, repressed memories of sexual peccadillos in childhood — advocated by the freudian school — have in turn served to befog the subject, to surround it with a veil of mystery and to lend it a prurient interest.

It was Charcot who finally led the way in the direction of clinical study. Here he was closely followed by his pupils Paul Richer and Gilles de la Tourette. We are all familiar with the elaborate descriptions of the hysterical attack and the elaborate chartings of the interparoxysmal period which ensued, and, for a time, it seemed as though a definite symptomatology of hysteria had been established. Logically and inevitably, however, these studies led to the discovery of the final truth, a truth as revolutionary as it was unexpected and astonishing. Charcot clearly divined something of the nature of hysteria, when he drew an analogy between hysteria and hypnosis. Moebius, however, appears to have been the first to maintain that all of the symptoms of hysteria were of psychic origin. He pointed out that the hysterical person without being hypnotized reacts like a subject under hypnosis. It remained, however, for Babinski to make the next great advance, which was the recognition of the fact that the symptoms owe their origin to suggestion. We all recall Babinski's results in his 100 cases of hysteria, not previously examined by physicians, in which he failed to elicit the symptom of hemianesthesia in a single instance, and how this hemianesthesia is usually found on the left side of the patient because the physician making the examination is usually right-handed and, facing the patient, directs the patient's attention to the left side and suggests the very hemianesthesia he is trying to discover. The hemianesthesia is an artefact. It had no previous existence in the patient and was directly produced by the medical examination. What is true of hemianesthesia is true of all the other phenomena of hysteria. All are the result either of medical or of other suggestion.

Another point now becomes evident. If, testing a healthy or normal person for hemianesthesia, the physician makes at the same time free use of suggestion both direct and indirect, he invariably fails to develop the symptom. In other words, the normal person repels, the hysterical person accepts the suggestion. This vulnerability to suggestion is one of the most striking facts of the neuropathy of hysteria. The latter always preexists, is always innate in the individual.

Just as the reaction of the hysterical person to suggestion is so excessive as to be pathologic, so is his reaction to emotional stimuli excessive and pathologic. Exaggerated emotional reaction, exaggerated emotional expression, general emotional instability, are therefore likewise features of the hysterical neuropathy. In keeping with this fact, the hysterical person reacts inordinately to fright, joy, annoyance, anger, disappointment, mortification, fancied slights or wrongs,

shame and kindred incidents. It follows as a physiologic corollary that the outward expression, the physical reaction, is excessive. Time alone forbids a detailed consideration of hysteria, but the latter may be safely defined as an innate neuropathy, the essential feature of which is a feebleness of resistance to mental impressions and an emotional instability; in other words, there is a pathologic vulnerability to suggestion and an exaggerated emotional reaction. Again, hysteria is a neuropathy of degeneracy. Hysterical persons are relegated with few exceptions to the ranks of the incapable. The hysterical woman makes an inefficient servant, an inefficient wife and housekeeper, an inefficient mother; the hysterical man, an inefficient workman, an inefficient provider for his family, an unsuccessful member of the community. Finally, hysteria presents a large element of heredity. Indeed, Charcot and his pupils regarded hysteria as always inherited; all other causes, to use Charcot's expression, have merely the value of *agents provocateurs*.

HYPOCHONDRIA

Out of the group of the neuroses we have now separated three well defined states: (1) neurasthenia; (2) psychasthenia, and (3) hysteria. A fourth now claims our attention, namely, hypochondria. Though Hippocrates does not use the term "hypochondria," it is quite old. Galen speaks of morbus hypochondriacus; other writers speak of hypochondriasis and associate the conditions with complaints of the stomach and of digestion. It was not, however, until the latter part of the eighteenth century that it was more definitely recognized. In 1765 Robert Whytt of Edinburgh, in his treatise on the nervous, hysterical and hypochondriac disorders, clearly separated it from the other two affections. He says: "The complaints of the first of the above classes may be called *simply nervous;* those of the second, in compliance with custom, may be said to be *hysteric,* and those of the third, *hypochondriac.*" We have here an instance of remarkable clarity of vision. In the middle of the nineteenth century French writers, beginning with Georget, recognized the mental character of the symptoms. German writers, Romberg, Griesinger, Schuele, Mendel, Jolly and many others followed. Time will not permit an analysis of the various views. For a time, hypochondria was confounded with hysteria and again with neurasthenia. Von Hoesslin was one of the first to differentiate it clearly from the latter affection, and in this he was followed by Mueller, Bouveret and others. Medical writers on the whole, however, have been loath to grant to hypochondria a definite position in our nosology, evidently for the reason that hypochondriacal states may occur in other affections, such as the prodromal periods of melancholia or of paranoia, or may complicate other mental diseases. On the other hand, hypochondria bears no relation to the nosophobia of neurasthenia nor to the suggested visceral phenomena of hysteria. Its symptoms owe their origin to a change in the general sense of bodily well-being, a change which gives rise to a more or less fixed conviction of illness.

The patient has a feeling of not being well, a feeling simetimes slightly pronounced but often so vivid as to dominate for the time being his life and actions. He usually seeks an explanation of his condition in the disease of one or more organs; most frequently he complains of manifold and distressing symptoms. The most careful clinical examination, it need scarcely be added, fails to revea' anything of moment.

Hypochondria occurs without the presence of a single symptom of the fatigue neurosis or of a single hysterical stigma. It occurs independently of melancholia, of paranoia or of the various demented states. Its symptom group occurs alone and pursues its own course. It is the expression of a diseased personality, of an abnormal condition inherent in the individual.

NEURASTHENIA SYMPTOMATICA

The foregoing considerations show that the neuroses resolve themselves into neurasthenia, psychasthenia, hysteria and hypochondria. A few words are demanded by the nervous symptoms which now and then accompany visceral disease. Serious bodily disease, of course, weakens the entire organism, and that various signs of nervous weakness should be present is but natural. The symptoms, however, are never those of the fatigue neurosis, of simple neurasthenia. For convenience, I have applied to them the term "neurasthenia symptomatica." The fact that bodily weakness is commonly associated with visceral disease has led some physicians to the erroneous conclusion that all neurasthenia is symptomatic, a position which the clinical facts, of course, abundantly disprove.

If neurasthenia is a physical condition, and if psychasthenia, hysteria and hypochondria are innate neuropathies, extraneous factors play no rôle in their causation. That, however, psychogenic factors may, especially in psychasthenia and hysteria, play a rôle in the details of the individual symptoms there can be no question. A psychogenic factor can play on or influence only a preexisting neuropathy. It cannot produce the latter. When a hemianesthesia is suggested in a case of hysteria, the suggestion is the psychogenic factor which develops the symptom; the suggestion, as we have seen, finds a ready soil in the hysteria and, in the absence of such a soil, fails of effect, that is, it fails to develop hemianesthesia in the normal person. That the psychogenic factor of suggestion frequently results in multiple symptoms and in special and often complex clinical pictures in hysteria there can be no doubt.

In psychasthenia, the special symptoms may consist merely of profound exaggerations of the general symptoms encountered in simple neurasthenia. The diminished force of the neurasthenic may express itself in a neuropathic subject as a profound impairment of will, an abulia; the lessened spontaneity and lessened ease of decision may amount to a pathologic indecision, a folie de doute; the lessened inhibition may result, as I have pointed out, in special movements, gestures and tics, while the timidity and general fear may result in special fears and obsessions. As in the case of hysteria, psychogenic factors cannot produce the neuropathy of psychasthenia, but, as in hysteria, they may result in the production of special symptoms and of complex clinical pictures.

The foregoing consideration of the neuroses leads to a simple and natural classification, a classification which, as we have seen, was largely anticipated by Robert Whytt over a century and a half ago. The neuroses arrange themselves naturally into neurasthenia, psychasthenia, hysteria and hypochondria. Neurasthenia is the result of exhaustion; psychasthenia of exhaustion occurring in a neuropathic subject; hysteria and hypochondria are both innate neuropathies, each defined by its own special characteristics.

Psychogenic factors play no rôle whatever in neurasthenia. In psychasthenia and hysteria they may lead to the production of symptoms which feature the indi-

vidual case. In hypochondria they play little or no rôle, the symptoms being almost altogether autogenous. In conclusion, it should be emphasized that the neuroses are physical, biologic and neuropathic in origin, and that psychogenic factors, when they play a rôle, do so merely in the surface manifestations.

1719 Walnut Street.

RADIUM IN THE TREATMENT OF CARCINOMA OF THE BLADDER AND PROSTATE

REVIEW OF ONE YEAR'S WORK *

B. S. BARRINGER, M.D.

NEW YORK

FOREWORD BY DR. KEYES

The results achieved by Dr. Barringer in the control of malignant disease of the prostate and bladder by the application of radium (unconfirmed though they be by the lapse of a number of years) are nevertheless striking and offer a prospect of amelioration and a possibility of cure for early and circumscribed neoplasms such as has not before been claimed for any physical agency.

In view of the skepticism which will naturally be aroused by these claims, I feel the obligation of intruding my concurrence.

The condition of Prostatic Cases 1, 3, 9 and 10 has been observed by me, both before and after treatment by radium. The condition of Prostatic Cases 5, 8 and 12 I have noted only after treatment. These observations, though few, are sufficient to justify Dr. Barringer's claim to have checked the growth of prostatic carcinoma in apparently incipient cases for periods varying from a few months to a year. Whether this check has amounted in any of these cases to a total destruction of the carcinoma within or about the prostate, or whether there has simply been a temporary regression, cannot be known at the present time. We know only that the major lumps have been absorbed, and that in many instances the remaining irregularities in the prostate are such that they cannot be distinguished from scars. Moreover, the improvement in the condition of these patients, as evinced by the relief of pain and the increase in weight, is truly remarkable.

I have also observed a regression in three cases of bladder carcinoma, all of which had been vainly treated by fulguration, two of which (Cases 6 and 16) were at the time of treatment flat and sloughy in type, and all of which had been diagnosed as carcinoma by pathologic examination of pieces removed by the cystoscopic forceps, after the last fulguration.

E. L. KEYES, JR., M.D.

RESULTS OF RADIUM TREATMENT

The least that can be said of the result herewith published of radium treatment of carcinoma of the prostate is that radium has produced a marked relief of the symptoms and diminution in the growth, if not a total disappearance of it in certain cases, and this in cases in which the carcinoma had exceeded the limits of the prostate gland — a condition in which it is recognized that surgery is impotent.

The superiority of radium in the treatment of carcinoma of the bladder is not so clear because of the cures that have been alleged from surgical treatment of this condition in its various stages. But with radium we have obtained local cures of flat, sloughy carcinomas of the bladder which, according to the surgical theories of today, would have required resection of the bladder for their removal. Unless these cases promptly recur (which they have not done up to the present) we are therefore in a position to state that we have with the placing of a tube of radium in the bladder for a few hours achieved as much as the surgeon does by a capital operation.

YEAR'S WORK IN CARCINOMA OF THE PROSTATE

1. Radium treatment has caused with surprising regularity the reduction or disappearance of carcinomatous nodules of the prostate. Striking results have been obtained both in early and in advanced cases (Cases 1, 3, 5, 8, 9, 10 and 12). The early cases, those in which the carcinoma is fairly well confined to the prostate and in which there is little or no perivesicular infiltration, all show a shrinkage of the carcinoma.

2. The reduction which occurs in carcinomatous lobes is, as far as has been observed, permanent. One case has been followed ten months; two for six months, and more recent cases but one or two months after the reduction.

3. The symptoms in those cases in which the carcinoma has been reduced generally show striking improvement (Cases 1, 3, 8, 9, 10 and 12). This symptomatic improvement is evidenced in increase in weight and strength, decrease in frequency of urination, and return of or improvement in erections. One patient of 74 years, on whom a suprapubic exploration showed carcinoma of the prostate, and who was treated but once with radium, gained 8 pounds, and reported five months later that he was then "doing a full day's work on steam boilers." He narrated on questioning that a full day's work was from 5 a. m. to 11 p. m. Another (Case 1) who had had no erections for one and one half years, had a permanent return of this function. This patient, who had been invalided, gained from 16 to 18 pounds, started in mild work "shoveling snow and lifting ash cans," and now is doing a full day's work in a machine shop, one year after his first treatment.

4. I have not departed from the technic used in my first case one year ago. Different strengths of radium have been used, but the application is the same. The radium is placed in the end of a needle extending from the tip from 1 to 1½ inches along the shaft. These needles[1] are from 4 to 6 inches long, and are inserted through the perineum into the prostate or further into the perivesicular sheath. Anesthetization of the perineum and the prostate with 0.5 per cent. novocain and epinephrin makes the insertion of these needles practically painless. Little or no pain is felt during the sojourn of the needle (about twelve hours), and the patient can either urinate or be catheterized. This means at most but twenty-four hours in the hospital.

The radium so used is practically unscreened, but *the maximum effect of the radium takes place directly in the center of the carcinomatous nodule.*

The patient usually has pain in the prostate and urinary frequency, beginning about three days after irradiation, and lasting a number of days. In some of the cases in which I have used large doses the reaction has been severe and has lasted several weeks. I believe that lesser doses are about as effective and not so painful. Nearly all of my patients have been irradiated only once in two or three months and no second treatment is given until the effect of the first is entirely over.

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* From the service of the Memorial Hospital.

* Read before the Genito-Urinary Section, New York Academy of Medicine, Nov. 15, 1916.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of a number of case reports. These will be included in the reprints, a copy of which will be sent by the author on request.

1. I am now having gold needles made. These will form a better screen than the steel needles.

5. The primary effect of the radium may be to increase the amount of the residual urine. The ultimate effect of the radium application on residual urine is probably nil, the amount neither increasing nor decreasing. Hence those patients who have chronic retention of urine require either the catheter or operation in addition to irradiation. It would seem wiser not to operate until the carcinomatous prostate had at least been given one dose of radium.

6. No sloughs have resulted from the radium needles.

7. Radium apparently has a selective action on carcinoma. I conclude this from descriptions by Dr. James Ewing of carcinomas examined after radium treatment, and from my own experience.

I have used radium on a hypertrophied prostate with absolutely no effect, neither burning nor shrinkage occurring; yet the same amount of radium would markedly reduce a carcinomatous lobe. I have had a similar experience in a case of chronic contractive fibrosis of the corpora cavernosa, barring the fact that the radium caused a superficial burn of the penis.

8. The pathologic examination of a prostate removed five months after irradiation is of interest (Case 5). The prostate was removed because of retention of urine. Only one treatment was given this patient because he was old and very feeble. The prostate had been considerably reduced in size following the radium treatment. At operation the prostate shelled out like a nonmalignant adenoma. Dr. Ewing's report is as follows:

> Material consists of several lobulated opaque portions of prostate making a mass as large as a hen's egg. Much of this has the honeycomb appearance of chronic prostatitis. But some areas are very firm and solid. Two such areas, size of bean, were sectioned. The main tissue of the gland shows lesions of chronic prostatitis with dilated glands and feeble epithelial proliferation. The solid areas show fibers of muscle tissue separated by rows of small epithelial cells with hyperchromatic nuclei. The appearance is that of diffuse carcinoma in a state of fibrosis. One area of adenocarcinoma is found in the center of a fibrosed area. There is no necrosis.
>
> In view of the history the diagnosis may be made of carcinoma, diffuse and adeno, arising on prostatitis, and undergoing atrophy and fibrosis from radium.

9. As far as I have observed, clinically all of the cases treated are of about the same degree of malignancy. There is a class of cases of prostatic carcinoma, however, of marked malignancy. In these the primary focus in the prostate is often overlooked, and the patient comes to be treated for his secondary focus. There have been two such cases at the Memorial Hospital in both of which there was a large carcinoma of the neck, and it was only by routine examination in one case and necropsy in the other that the primary focus in the prostate was found. Such cases are apparently very malignant, and it is a question if we would ever get them early enough for any treatment to count.

10. Very large carcinomas accompanied by cachexia and loss of weight on the part of the patient are beyond radium and any other treatment.

11. The first year's work has not revealed what, if any, cases have been cured. Time alone will answer that question. To carry my work further, therefore, with the hope of really curing some cases, I am attacking the paths of metastasis, the perivesicular lymphatics with longer needles which are inserted through the perineum and prostate high up along both seminal vesicles.

SUMMARY OF PROSTATIC CASES

Seventeen cases of prostatic carcinoma have been treated. The seventeen cases may be roughly divided as follows:

Advanced Cases.—Eight of the cases (2, 4, 7, 8, 9, 10, 11 and 13) were hopeless; in two of these (Cases 8 and 9) the carcinoma had invaded the bladder. Two patients have died (Cases 2 and 4). Two (Cases 7 and 11) are going down hill. One has been lost track of; seven months after a single treatment, however, I heard that he was up and working. Three (Cases 8, 9 and 10) are improved. In two of these the diagnosis was confirmed by microscopic examination (Dr. Ewing). In the first, the prostatic carcinoma has almost disappeared and the carcinomatous lump which projected into the bladder has about gone. The second patient has gained about 14 pounds in weight, goes from four to six hours without urinating, has good erections, and his carcinoma, with the exception of a small lump remaining in the right vesicle, has disappeared. The third patient looks well, urinates less frequently at night, and has no residual urine, as against from 2 to 3 ounces before the radium treatment.

Early Cases.—Nine of the seventeen cases (Cases 1, 3, 5, 6, 12, 14, 15, 16 and 17) were, roughly speaking, fairly early. This does not mean that they were suitable for operation. As a matter of fact, because of the initial success of radium treatment I now take the stand that no patients with prostatic carcinoma should be operated on. The diagnosis of carcinoma was confirmed by microscopic examination in four of these nine cases. Five of the nine have been too recently treated to report in detail. The remaining four (Cases 1, 3, 5 and 12) have much improved as far as the prostate goes, and three have improved symptomatically. One has gained 16 pounds, and has no night frequency, as against from three to four times, and works a full day, as against no work. One gets up at night not at all as against from three to four times, and has had no catheterization since the radium treatment (eight months ago); whereas before treatment he had one or more attacks of acute retention. One has gained 5 or 6 pounds, and has come back to a full day's work (from 5 a. m. to 11 p. m.) on steam boilers. The fourth patient did not improve symptomatically because of his urinary retention. This patient's prostate was removed five months after irradiation, and he is now recovering from his operation.

BLADDER CARCINOMA

My statistics in bladder carcinoma, viewed from different points of view, are both good and bad — bad because five of sixteen patients treated have died[2] and three are rapidly getting worse. The fact that in the first year I have treated nearly every patient sent to me, and that thirteen of the sixteen cases were advanced carcinoma, explains these statistics.

I consider the results good because four cases of carcinoma of the bladder (three advanced, one early, Cases 2, 6, 10 and 16), three confirmed microscopically as carcinoma (Dr. Ewing), have been cystoscopically proved cured, one for ten and one half months, one for five months, and two recently.

These few cases have so impressed me that I believe the cure[3] by radium of carcinoma of the bladder

2. Two as a result of transplantation of the ureters because of intolerable pain.

3. Cure as far as the bladder is concerned; it is too early to speak of permanent cure.

depends on two conditions: first, to get cases early enough, and, second, actually to apply the radium to the carcinoma.

Application of Radium in Bladder Carcinoma.—The technic of the application of the radium has been outlined in my preliminary report.[4] A capsule of screened radium (0.6 mm. of silver and 1 mm. of rubber) from 100 to 200 mc. is placed in the bladder through the sheath of the cystoscope and allowed to remain there from six to ten hours. As 90 per cent. of bladder tumors are on the bladder base, the radium so inserted is in close contact with the tumor. If the carcinoma is on the vault or lateral walls, the patient lies on his abdomen or on one or the other side. After the treatment the radium is removed through the urethra by a linen thread attached to the tube.

In my year's work I have seen no reason to depart from this technic. The initial pain experienced is only that of the cystoscopy. The after-burn varies from none at all to more or less severe pain beginning a few days after treatment and lasting from one day to several weeks.

In extensive carcinoma involving the bladder, sphincter irradiation may greatly increase both the pain and the urinary frequency. It is to be used in these cases with caution.

CASE REPORTS OF PROSTATIC CARCINOMA[5]

CASE 1.—J. C. D., aged 59, complained chiefly of loss of flesh and strength, and night urinary frequency, from three to four times for four months. He had had pain in the right thigh for five years. Prostatic examination (with Dr. Keyes) revealed a large, hard, fixed, irregular prostate, each lobe of which was about as large as an English walnut; the left lobe was more prominent than the right, and there was little extension toward the seminal vesicles. Radium treatment was given, Oct. 20, 1915, 50 mc. for six hours in each lobe.

November 17, the patient reported that he had considerable burning after the treatment, and that he had a number of erections since (erections had been lost for one and one-half years). The prostate felt the same.

Jan. 14, 1916, the patient had gained about 10 pounds; he felt fine; erections had diminished. Examination of the prostate (with Dr. Keyes) revealed marked shrinking of the carcinoma. Dr. Keyes said that it was more the slight irregularity of the prostate than anything else that suggested carcinoma. I gave the patient 60 mc. of radium for four hours in both lobes.

January 31, he had gained about 6 pounds more, making 16 in all. He had had no pain from the radium, and rose once at night to urinate.

February 18, he did not get up at all at night to urinate, and had gained 2 pounds in weight. There was slight induration at the base of the prostate, and the right lobe was treated for eight and one-half hours with 38 mc. of radium.

April 4, treatment with 75 mc. was given the right lobe for four hours, and then the left lobe for four hours.

November 7, he had been working in the machine shop for six months, and had lost a couple of pounds. He had had some burn after the radium, which had caused an increase in night urination (from three to four times). In the center of the left lobe there was a small, fairly hard lump, and a slight, hard ridge in the right lobe. The patient's condition was fine.

CASE 9.—M. H., aged 65, had a sloughy, pedunculated carcinoma removed from the neck of the bladder by Dr. Keyes. This grew from the prostate, no removal of which was attempted. The pathologic examination (by Dr. Ewing) was thus reported: "The section is from a mass of tumor tissue 1.5 cm. in diameter. It shows a solid carcinoma composed of small and large groups of compact tumor cells, with very little stroma. The cells are of medium size, polyhedral, with hyperchromatic nuclei. The vessels are scanty. There is no necrosis. It is impossible to state from the section whether there is any infiltration of the bladder wall. In structure the tumor is a fully developed carcinoma."

June 6, the right lobe of the prostate, which had a hard ridge, was treated with 93 mc. of radium.

July 5, there was slight burning after the radium; the lump in the prostate was the same.

September 12, the patient did not have to rise at night. He went from four to six hours without urinating. He had gained 15 pounds. The lump in the right lobe was about gone. Drs. Keyes and Jeck saw it as infiltrations running up into the right vesicle. This is to be treated with radium.

CASE 12.—F. S., aged 74, was operated on at Mount Sinai Hospital, and carcinoma of the prostate was found. When I first saw him he had a night frequency of three times, and the right lobe of the prostate was small, hard and irregular.

June 29, this lobe was treated with a radium needle of 86 mc. for four and a half hours.

October 29, the patient still urinated from three to four times at night; he had a good appetite, had no pain, and worked from 5 a. m. to 11 p. m. on steam boilers. He reported having had but little burn from the radium. The prostate was flat and somewhat irregular with some induration beyond the prostate across the bladder base. No carcinoma was palpable in the prostate. (Examination was made with Dr. Keyes.)

CASE REPORTS OF BLADDER CARCINOMA[6]

CASE 2.—C. A. G., woman, aged 69, complained chiefly of urinary frequency for the past year, at night three or four times, during the day every three or four hours, and pain following urination. She had been passing bloody urine for the past four months. A number of months before I saw her, cystoscopic examination had been made, with a diagnosis of inoperable carcinoma. Cystoscopy revealed a large red carcinoma with necrotic patches on the left side of the bladder obscuring the left ureteral orifice. The tumor was probably as large as a half dollar. The specimen removed was thus described (by Dr. Ewing): "The section is of a small mass of tumor tissue 2 mm. in diameter. It shows the structure of a small alveolar carcinoma, much inflamed, with dilated blood vessels. The cells are cleared, irregular in size, with large hyperchromatic nuclei, and arranged in small groups. The stroma is scanty."

Jan. 19, 1916, 100 mc. of screened radium were placed in the bladder and allowed to remain for eight hours.

February 4, she reported that she had had some frequency and severe bladder pain for two days; then everything was normal. Cystoscopy (performed with Drs. Keyes and Jeck) revealed that the tumor had gone, the area was covered with normal mucous membrane, and the ureter was visible.

July 6, she had gained from 4 to 5 pounds, and had a slight cystitis due to a cystocele, but there was no tumor.

December 19, she had a stellate white scar over the place occupied by the tumor. No tumor was visible.

CASE 6.—C. T., man, aged 59, eight months before being seen had occasional painless hematuria. Cystoscopy revealed papilloma near the left ureter. This was burned with the high frequency current four times in about six months, but had always recurred. Dr. Keyes saw it in January, 1916, when it was an ulcerated area with carcinomatous looking lumps. A piece removed was thus described (by Dr. Ewing): "The section is from a mass of tumor tissue 5 mm. in diameter. It presents a small alveolar and diffuse carcinomatous structure. The cells are extremely atypical, and some are of very large size, with very hyperchromatic nuclei. The outer portions are hydropic, the central areas show fibrosis, and here the tumor cells run in narrow rows or small groups."

Feb. 11, 1916, 214 mc. of screened radium were inserted for seven hours.

May 2, cystoscopy revealed normal mucous membrane over the space occupied by the carcinoma. The patient had had seven or eight erections since treatment, while he had been practically impotent for ten years before.

4. Barringer, B. S.: The Treatment by Radium of Carcinoma of the Prostate and Bladder, THE JOURNAL A. M. A., Nov. 11, 1916, p. 1442.

5. Treated from October, 1915, to October, 1916.

6. Treated from October, 1915, to October, 1916.

In July, he had gained 10 pounds. Cystoscopy (by Dr. Ballenger) was negative.

November 8, Dr. Ballenger reported that he "had passed no more blood. Cystoscopy about a month ago showed only a reddened place where the growth was. There has been a rather persistent cystitis."

Case 16.—J. A. H., man, aged 62, had had two attacks of total hematuria, one month and eight days before he was seen. There were no night frequency and no loss of weight. Dr. Keyes saw by cystoscopy a red, lobulated, rather flat carcinoma above the right ureter; he burned it with the high frequency current and advised radium. The patient went to another physician, who fulgurated the tumor and decided against both operation and radium. About three months later he returned when (on examination with Dr. Keyes) a flat carcinoma, sloughy in part, two or three times the original size, was revealed, extending from the bladder neck to a point 2 cm. above the right ureter. It had raised, thick, indurated edges. A specimen removed revealed carcinoma (Dr. Ewing). Two tubes of screened radium (one 90 and one 89 mc.) were left in the bladder six hours.

Two months later the patient returned, when redness of the right side of the bladder was seen and a small ulcer back of the ureter (well away from where the tumor was) probably due to radium burn. *No other lesion was seen.*

SUMMARY

Three out of eight patients with advanced carcinoma of the prostate have been markedly improved. In three out of four early cases the patients have been relieved of their symptoms, and the growth has so far shrunken as hardly to be appreciable by the finger. Moreover, four patients with bladder carcinoma appear to be cured by the use of radium. Of course I use the word "cured" in a restricted sense, but radium has done for these patients what no other agent short of operation could possibly have done, while for the prostatic patients it has done much more than operation could have done.

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THE ABSORPTION OF APOMORPHIN AND MORPHIN THROUGH THE CONJUNCTIVA *

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While surgeons, gynecologists, and even authorities on internal medicine have on frequent occasions looked with little faith on the efficiency of drug medication, an attitude of drug nihilism cannot be imputed to the ophthalmologist. Indeed, some of the most important pharmacologic contributions have been in the field of ophthalmology, and some of the most strikingly beneficial therapeutic effects have been produced in the treatment of eye conditions. We need but mention the employment of atropin, cocain, physostigmin, epinephrin and many other mydriatics, miotics, astringents, analgesics and antiseptics.

When we consider the highly developed blood and lymph supply of the eye and its appendages, especially the patent tear ducts, it is surprising that so few cases of drug absorption and intoxication through them are on record. So few are the cases found in the literature that many physicians deny the possibility of such absorption through the conjunctiva and the lacrimal apparatus, and attribute the poisoning in such cases to the careless administration of the drugs and to their absorption through the mouth of the patient.

A careful examination of the literature, however, will soon establish the authenticity of such poison cases. Thus, for instance, systemic poisoning by cocain through absorption from the eyes has been not infrequently observed. An interesting summary of such cases has been published by Falk.[1] That author collected reports of twenty cases of such poisoning. In one of them, a boy, aged 14 years, was severely poisoned by the instillation of 1 drop of 1 per cent. solution of cocain. In another case, a man, aged 40, suffered a collapse and respiratory failure after the instillation of 2 drops of a 4 per cent. solution.

Systemic symptoms from instillation of atropin into the conjunctival sac are even more frequent than those from cocain, and have been reported by Feddersen,[2] Lewin,[3] von Jaksch,[4] Blyth,[5] Kunkel[6] and other toxicologists as well as by many ophthalmologists.

In connection with pharmacologic investigations on opium alkaloids, which I have been conducting for some time past, an interesting observation was made which strikingly establishes the fact that certain drugs can be quickly absorbed through the conjunctiva.

If a few milligrams of apomorphin hydrochlorid are sprinkled into the eye of a dog and the animal is held still for a minute or two in order to allow the drug to dissolve, emesis follows in from two to five minutes.

The same phenomenon is produced by the instillation of a few drops of a 1 or 2 per cent. solution of apomorphin hydrochlorid. I have been able to produce a state of vomiting by the instillation or dusting of apomorphin into the conjunctiva, in every case in which it was tried. In all the experiments, care was taken to eliminate any possibility of the animal's absorbing the drug by licking. Furthermore, the experiments were repeated also on animals under anesthesia, and in a moribund state after prolonged operations; even in those cases retching movements followed the administration of apomorphin through the eye.

As vomiting is produced in dogs almost as easily with morphin as with apomorphin, experiments were also made with instillations of morphin solutions and insufflations of morphin powder into the conjunctival sac; here again emesis followed, although after a somewhat longer interval (five or more minutes).

It may be well to call attention to the fact that in the experiments described above, which were made on normal dogs, no cruelty was practiced, as I have quantitatively shown, in my work with Johnson and Bollinger,[7] that the opium alkaloids have a slightly analgesic, local effect on mucous membranes.

I have had no experience with local applications of apomorphin or morphin on human subjects, nor do I recommend such practice. The foregoing experiments, however, should serve to emphasize the possibility and importance of drug absorption through the conjunctiva, and to render the ophthalmologists more cautious in the employment of toxic alkaloids.

Further experiments now in progress seem to indicate that the absorption of the foregoing drugs takes place through the blood and lymph channels, and not altogether through the nasal duct. The full data will appear in due time in the *Journal of Pharmacology and Experimental Therapeutics.*

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* From the Pharmacological Laboratory, Johns Hopkins University.

1. Falk: Therap. Monatsh., 1890, **4**, 511.
2. Feddersen: Diss., Berlin, 1884.
3. Lewin: Nebenwirkungen der Arzneimittel, 1910.
4. Von Jaksch: Die Vergiftungen, 1910, p. 471.
5. Blyth: Poisons, 1906, pp. 358, 385.
6. Kunkel: Handbuch der Toxicologie, 1901, p. 706.
7. Macht, Johnson and Bollinger: Jour. Pharmacol. and Exper. Therap., 1916, **8**, 451.

LUMBAR PUNCTURE FOR THE RELIEF OF DELIRIUM IN LOBAR PNEUMONIA

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AND
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In pneumonia, delirium is usually a symptom indicative of a severe infection. The respiratory and vasomotor systems are as a rule, though not necessarily, also affected by the severity of the toxemia, of which the delirium is the most obvious manifestation. The control of this delirium in most cases is necessary in order to avoid throwing a greater strain on the heart than would occur under ordinary circumstances in the infection. A wild, uncontrollable delirium is dangerous, not only because it presumably indicates a severe toxemia, but also because it may rapidly exhaust the patient through muscular exertion. In spite of the exhausting effects of delirium, the usual remedies recommended for its control are distinctly depressant. Such an effect may be desirable, as in delirium tremens when the delirium is not associated with a virulent infection, such as pneumonia, which may overwhelm the patient at any time. To give depressing drugs when the chief indication for treatment is to support and maintain the patient seems irrational. The usual methods advocated by various authorities[1] on pneumonia for the control of delirium include hydrotherapy primarily, and if this fails, drugs, such as bromids, chloral and the like. Morphin is advocated only in the severe types of delirium, though it probably has a less depressing and harmful effect than the former drugs. In none of the standard works could we find lumbar puncture advocated, nor in a review of the current medical literature for the past four years could we find any reference to it as a measure to control delirium in pneumonia, though it has undoubtedly been employed. Roger and Baumel,[2] however, recommend it for the alleviation of headache in pneumonia. The relief of delirium by lumbar puncture is naturally suggested by the results that have been achieved in delirium tremens. In this condition there is a marked increase in intraspinal tension, as shown by Schottmüller and Schumm.[3] Assuming this to have some relationship to the delirium, Steineback[4] systematically employed lumbar puncture for the treatment of delirium tremens with excellent results. Lumbar puncture apparently not only relieves pressure but also removes a certain amount of toxic substances. The author recommends a further dilution of these substances by injection of physiologic sodium chlorid solution in amounts equivalent to the fluid removed. Another factor is that in delirium tremens there is a greater hydration capacity of the brain than normal.[5] Presumably the removal of the fluid under pressure within the meninges lessens the possibility of greater absorption of fluid, and consequently decreases the production of delirium.

1. These authorities include:
Hare, H. A., in Musser and Kelly: Practical Treatment, Philadelphia, 1911, p. 277.
Ortner: Treatment of Internal Diseases, Philadelphia, 1913, p. 309.
Musser and Norris, in Osler: Modern Medicine, Philadelphia, 1907, p. 566.
Osler, W. A.: Principles and Practice of Medicine, New York, 1912, p. 101.
Goodall: Index of Treatment, London, 1916, p. 363.
2. Roger and Baumel: Rev. de méd., 1915, **33**, 42.
3. Schottmüller and Schumm: Neurol. Centralbl. 1912, **31**, 1020.
4. Steineback: Deutsch. med. Wchnschr., 1915, **41**, 369.
5. Nuzum, Frank, and Le Count, E. R.: The Ability of Brain Tissue to Take up Water in Delirium Tremens and Other Conditions, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1822.

By analogy with delirium tremens, the rationale of removal of excess spinal fluid in pneumonia may be justified. It appears that the most common theory of the pathogenesis of delirium in delirium tremens is that the increased intraspinal pressure is responsible for the delirium rather than cerebral congestion, for example. In pneumonia there is no evidence of bacterial invasion of the meninges, excepting, of course, when there is a true pneumococcic meningitis; the fluid is sterile when cultures are taken. It is presumable that in a certain number of cases the pneumococcic toxins may have a greater affinity for the spinal membranes than in other cases. Such cases respond to the irritation of this toxin by the secretion of increased amounts of fluid by the choroid plexus. As a result of this the usual channels of escape are blocked up and the increase of pressure causes changes in the brain cells with the subsequent delirium. To relieve this it is obvious that lumbar puncture is indicated.

In the series of cases reported, this result was promptly and immediately attained. Large amounts of fluid were withdrawn in only two cases, and it is fair to presume, therefore, that in addition to the relief of pressure, as in delirium tremens, there was the added factor of escape of toxins probably more or less concentrated.

CLINICAL NOTES

During December, 1916, and January, 1917, an unusual number of lobar pneumonia patients were admitted to the men's medical ward of the Presbyterian Hospital. Several were delirious on admission or developed delirium soon after entrance to the hospital, and it is this series of cases that particularly interested us.

The first patient was wildly and uncontrollably delirious on entering the ward, and at the suggestion of Dr. Sailer, to whom we are indebted for permission to report these cases, we were led to attempt a spinal puncture in an effort to control the delirium. The puncture was done, fluid flowed under marked pressure, and within an hour or two the patient became quiet, his delirium diminished greatly, and he was able to sleep intermittently.

Stimulated by this success, we continued treating the delirious pneumonia patients by lumbar puncture, and without any exception brought about a marked diminution if not an absolute cessation of their delirious condition.

The patients who developed delirium after admission to the hospital did so gradually, the delirium being preceded by increasing nervous symptoms. The patellar, biceps and triceps reflexes were always increased, and in one case Kernig's sign was present. The gradually increasing restlessness and irritability developed into delirium, which became more marked as the disease progressed. Although the nervous signs led us to watch for delirium, we always waited for the delirium as an indication for the puncture.

It was our habit to attempt to control the restlessness preceding the delirium by sedatives, morphin as a rule, usually with only partial success. After a puncture, however, the patient became quiet, was able to sleep, and sedatives could be dispensed with. The puncture in itself, contrary to our expectations, caused the patient only slight discomfort. Only a few complained of pain, and these were not markedly upset by the procedure. None of the patients showed any immediate untoward effects as a result of the operation.

At first the fluid came from the needle under pressure, often flowing in a steady stream which rather rapidly decreased to a normal flow. We did not limit ourselves to a definite amount, but allowed the fluid to escape until the rate reached normal.

In one case the delirium apparently began to return, leading us to repeat the puncture; here there was no excessive pressure to the flow, and only a small amount was withdrawn. The symptoms increased no further, and the patient went on toward recovery.

It is interesting to note that in the seven cases of delirium, four patients died, two developed empyema, one of these showing also myocardial weakness, and the remaining one had unresolved pneumonia with a greatly prolonged convalescence. In the cases which terminated fatally, death seemed to be the result of an overwhelming toxemia rather than a cardiac failure. The cases in which the patients recovered were extremely severe in type, and during the course of the disease the prognosis was so unfavorable that a successful termination was not expected.

REPORT OF CASES

CASE 1. (H-64017).—The patient was admitted to the ward, Dec. 19, 1916, with lobar pneumonia of the left lower lobe of four days' duration. He was delirious on admission to a wild and maniacal degree. Two days after admission, lumbar puncture was performed. The fluid was under considerable pressure; 30 c.c. were removed. No laboratory report was made, as the test tube was broken. The delirium greatly diminished, changing from a wild, active type to a low muttering. The patient died, Dec. 23, 1916.

CASE 2 (F-64061).—The patient was admitted, Dec. 22, 1916, with lobar pneumonia of the right middle and lower lobe of two days' duration. He developed a marked delirium four days later and a severe headache. Lumbar puncture was performed on the eighth day of the disease; 65 c.c. of clear fluid were removed under great pressure. The laboratory reported that it was sterile, with negative Noguchi and Rivolta tests. The delirium was almost immediately relieved, and improvement in the general condition was marked. The patient developed empyema, was operated on, and was cured.

CASE 3 (C-64074).—The patient was admitted, Dec. 25, 1916, with no obtainable history. There was lobar pneumonia of the left upper lobe. He was widly delirious on admission. Lumbar puncture was performed three days later; 35 c.c. of clear fluid under marked pressure were removed. The laboratory reported that it was sterile, with negative Noguchi and Rivolta tests. A note made on the day after rachiocentesis said: "Immediately after tap patient quieted down. He is now semiconscious, sleeps intermittently and is neither restless nor delirious. General condition not improved." Death occurred, Dec. 30, 1916.

CASE 4 (C-64128).—The patient was admitted, Dec. 29, 1916, with lobar pneumonia of the right middle lobe of two days' duration. January 3, he was very restless and irrational; spinal puncture was performed, and 30 c.c. of clear fluid under pressure were removed. The laboratory reported that it was sterile, with faintly positive Noguchi test and negative Runeberg. Four hours after puncture, the patient was much less restless and was sleeping. There was no further delirium. The pneumonia was unresolved for several weeks, but eventually cleared up.

CASE 5 (H-64151).—The patient was admitted, Dec. 31, 1916, with pneumonia of the right upper lobe of one day's duration. He was irrational and delirious, the next day. Lumbar puncture was performed, January 3, as the delirium showed no improvement; 30 c.c. of clear fluid were removed under considerable pressure. The laboratory reported that it was sterile, and the Noguchi test negative. The patient's condition the next day was worse, but he was entirely rational and much more quiet. Death occurred, Jan. 5, 1917.

CASE 6 (A-64200).—The patient was admitted, Jan. 6, 1917, with pneumonia of the right lower lobe of one week's duration. He had been irrational and delirious for two days preceding admission. Lumbar puncture was performed, the day following admission; 25 c.c. of clear fluid were removed under slight pressure. It was sterile, and the Noguchi test positive. Runeberg was negative. The patient was quiet after the rachiocentesis, and the delirium disappeared. He slept well. He died in coma, Jan. 13, 1917.

CASE 7 (A-64).—The patient was admitted, Jan. 14, 1914, with lobar pneumonia of the left lower lobe, of three days' duration. Wild, noisy delirium developed two days after admission. Spinal puncture was performed twelve hours later; 45 c.c. of clear fluid under considerable pressure were removed. The laboratory reported a culture of *Staphylococcus albus* (contamination?) grown from the fluid; the Noguchi test was positive. After the rachiocentesis, the patient quieted down markedly. Two days later, restlessness and delirium returned with the appearance of parotitis. Spinal puncture was repeated, and 4 c.c. were removed, not under pressure. The patient improved steadily in his general condition from this date on, but developed an empyema which required operation.

SUMMARY AND CONCLUSION

In seven cases of pneumonia associated with severe delirium, relief of the delirium promptly followed spinal puncture. The mortality rate was high, but as delirium is usually an indication of a severe infection, we feel that lumbar puncture offers a ready aid in controlling one of the symptoms which may so aggravate the patient's condition that what little chance he may have of surviving the infection would be lost were it not for this procedure. Lumbar puncture is suggested as a measure to control a severe symptom, and not for any direct curative purposes.

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THE RELATION BETWEEN DIABETES MELLITUS AND CLINICAL SYPHILIS

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The recent work of Warthin and Wilson[1] has stimulated interest in the question of coincidence of latent syphilis and diabetes. They report that in six necropsies in cases of diabetes, all presented histologic changes of syphilis; in four of them, spirochetes were found in the myocardium, and in one of these cases, in the pancreatic lesions. They also report that the pancreas in forty-one cases of latent syphilis already reported by Warthin[2] showed marked changes, and conclude that "latent syphilis" is the chief factor in the production of the form of pancreatitis most frequently associated with diabetes, but that diabetes is not always coincident with severe degrees of this type of pancreatitis.

For several years, I have been interested in the possible relationships between clinically demonstrative syphilis and diabetes, and have studied the cases of diabetes encountered in practice in regard to this relationship. The data are presented in this paper.

It is quite possible that syphilis might cause diabetes by producing a specific lesion of the brain, especially of the medulla. Syphilitic arterial disease with secondary nervous lesions in the region of the fourth ventricle, or a gumma in this part would also be capable of producing diabetes. Again, syphilis might produce diabetes by causing disease of the blood vessels of the

1. Warthin, A. S., and Wilson, U. F.: Am. Jour. Med. Sc., 1916, **152**, 157.
2. Warthin, A. S.: Am. Jour. Med. Sc., 1916, **152**, 508.

pancreas and secondary disease of pancreatic gland tissue.

Von Noorden[3] mentions cases of glycosuria reported to have been cured by treatment with mercury and iodids.

F. Hirschfeld[4] found that 6 per cent. of his cases of diabetes could be claimed to be on a syphilitic basis. Von Noorden[5] discovered 1.2 per cent. of male diabetics, under 20 years, were syphilitic, 7.1 per cent. of male diabetics, over 20 years, and 2.3 per cent. of female diabetics, of various ages. Sarra's[6] statistics are about the same. Scheinmann,[7] Neumann,[8] Ehrmann[9] and Lombroso[10] have also published reports on the relation between diabetes and syphilis.

Ord[11] has recorded several cases in which glycosuria has been found in patients presenting the ordinary general symptoms of constitutional syphilis.

3. Von Noorden: Die Zuckerkrankheit, 1898, p. 160.
4. Hirschfeld: Deutsch. med. Wchnschr., 1909, **35**, 137.
5. Von Noorden: Die Zuckerkrankheit, Berlin, 1912, p. 78.
6. Sarra: Gazz. d. osp., 1909, **30**, 729.
7. Scheinmann: Diabetes and Syphilis, Diss., Berlin, 1884. This contains references to the old literature.
8. Neumann: Syphilis, Vienna, 1899, Ed. 2, p. 622.
9. Ehrmann: Deutsch. med. Wchnschr., 1908, **34**, 1303.
10. Lombroso: Ergebn. d. Physiol., 1910, **9**, 1.
11. Ord: Brit. Med. Jour., 1889, **2**, 965.

Feinberg[12] has reported three cases of diabetes and one of glycosuria which were apparently of syphilitic origin. These were all cases of nerve involvement and were under antisyphilitic treatment; recovery occurred in one of the cases, improvement in the other two, but in the case of glycosuria no definite improvement followed.

Williamson,[13] in 100 cases of diabetes, obtained a history or indication of previous syphilis in six cases, and found in these no reason to regard syphilis as the cause of the diabetes. Walker and Haller[14] reported seven positive Wassermann reactions in eighty-nine cases of diabetes, and obtained a history of syphilitic infection in a majority of these seven cases.

The accompanying table shows that of the sixty-two cases of diabetes mellitus studied, there is positive evidence of syphilis in seven, or 10.3 per cent. Five of these seven patients were persuaded to take syphilitic treatment. There was no increase in tolerance for carbohydrate in any of these cases after treatment.

12. Feinberg: Berl. klin. Wchnschr., 1892, **39**, 119.
13. Williamson: Diabetes Mellitus and Its Treatment, 1898, p. 113.
14. Walker, I. C., and Haller, D. A.: Routine Wassermann Examinations of Four Thousand Hospital Patients, THE JOURNAL A. M. A., Feb. 12, 1916, p. 488.

RESULTS OBTAINED IN A STUDY OF SIXTY-TWO CASES OF DIABETES MELLITUS IN RELATION TO A POSSIBLE EXISTING SYPHILIS

Case No.	Sex	Age	Age When Diabetes Was First Discovered	Wassermann Test	Luetin Test	Constitutional Signs of Syphilis
1	Female	21	20	Negative	Negative	Absent
2	Female	46	44	Negative	Negative	Absent
3	Female	50	40	Negative	Negative	Absent
4	Female	26	23	Negative	Negative	Absent
5	Male	50	46	Negative	Negative	Absent
6	Male	44	44	Positive	Positive	Syphilitic myelitis
7	Female	56	53	Positive	Positive	Husband syphilitic
8	Female	60	52	Negative	Negative	Absent
9	Male	49	48	Negative	Negative	Absent
10	Female	60	57	Negative	Negative	Absent
11	Female	53	49	Negative	Negative	Absent
12	Male	50	45	Positive	Positive	Enlargement of liver and spleen
13	Male	49	48	Negative	Negative	Absent
14	Male	69	65	Negative	Negative	Absent
15	Male	48	44	Negative	Negative	Absent
16	Male	62	58	Positive	Positive	Aortic sclerosis
17	Female	45	43	Negative	Negative	Absent
18	Female	70	60	Negative	Negative	Absent
19	Male	45	45	Positive	Positive	History of chancre
20	Male	60	50	Negative	Negative	Wife (absent) diabetic
21	Female	38	38	Negative	Negative	Absent
22	Male	45	44	Negative	Negative	Absent
23	Female	46	43	Negative	Negative	Absent
24	Female	48	48	Negative	Negative	Absent
25	Male	58	44	Negative	Negative	Absent
26	Male	69	67	Negative	Negative	Absent
27	Female	58	54	Negative	Negative	Absent
28	Male	44	41	Negative	Negative	Absent
29	Female	48	46	Negative	Negative	Absent
30	Male	50	43	Negative	Negative	Absent
31	Male	54	52	Negative	Negative	Absent
32	Female	36	35	Negative	Negative	Absent
33	Male	43	40	Negative	Negative	Absent
34	Female	68	66	Negative	Negative	Absent
35	Male	41	39	Negative	Negative	Absent
36	Female	55	53	Negative	Negative	Absent
37	Female	43	41	Negative	Negative	Absent
38	Male	46	45	Negative	Negative	Absent
39	Male	42	41	Negative	Negative	Absent
40	Male	62	56	Negative	Negative	Absent
41	Female	55	52	Negative	Negative	Husband (absent) diabetic
42	Male	58	57	Negative	Negative	Absent
43	Female	25	22	Negative	Negative	Absent
44	Female	55	51	Negative	Negative	Absent
45	Male	45	44	Negative	Negative	Absent
46	Female	64	63	Negative	Negative	Absent
47	Male	60	54	Negative	Negative	Absent
48	Male	62	52	Negative	Negative	Absent
49	Female	59	56	Negative	Negative	Absent
50	Male	31	28	Negative	Negative	Absent
51	Female	47	46	Negative	Negative	Absent
52	Male	60	55	Negative	Negative	Absent
53	Male	55	53	Negative	Negative	Absent
54	Female	62	52	Negative	Negative	Absent
55	Male	33	31	Negative	Negative	Absent
56	Male	39	38	Negative	Negative	Absent
57	Male	52	44	Negative	Negative	Absent
58	Male	60	52	Negative	Negative	Absent
59	Male	51	49	Positive	Positive	Cardiosclerosis
60	Female	52	49	Negative	Negative	Absent
61	Male	54	44	Negative	Negative	Absent
62	Male	38	36	Positive	Positive	History of chancre

On this account, it cannot be stated definitely that the diabetes was due to the syphilis. It is, however, logical to think that they exist as independent conditions, at least in the cases that are presented in this paper.

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A NOTE ON THE INTESTINAL ACTION OF ADSORPTIVE AGENTS *

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During recent years certain adsorbents, notably kaolin and fullers' earth, have come into use in the treatment of diarrhea. Kaolin (bolus alba) has been favorably recommended by the Austrian medical officers, who used it extensively in checking the diarrhea of cholera when that disease was prevalent early in the war.

Hess,[1] working with the diarrheal conditions of infants, advocates the use of fullers' earth rather than kaolin; the latter he found of no value. Fullers' earth checked the diarrhea, indeed caused constipation when continued for any length of time; it diminished the vomiting and seemed without harmful effects of any kind.

It is recognized that any therapeutic action of these substances will result from the physical property of adsorption, and Fantus[2] has suggested that they be standardized for use on such a basis. Fantus has studied particularly the value of fullers' earth as an adsorbent of various alkaloids, a phenomenon that may have considerable value in an antidotal capacity. The suspension of fullers' earth carries a positive electrical charge and is therefore most effective as an adsorbent of the negatively charged colloids and, selectively, of the lipoids, whence the derivation of the name. Kaolin, on the other hand, is practically amphoteric, possibly not an unimportant factor in the explanation of the weak activity developed as an adsorbing substance.

We can conceive the effect of such agents in the gastro-intestinal tract as influencing a variety of factors: Toxic substances may be adsorbed and thereby their systemic effect removed; ferment activity may be altered or, finally, the bacterial flora influenced. Apart from the work of Fantus, Friedberger and Kumagai[3] have published data indicating that such agents adsorb the larger molecular aggregates more readily than the lower split products of the proteins. An intoxication depending, therefore, on the absorption of the higher split products of proteins through a damaged bowel wall might conceivably be modified through the introduction of adsorptive agents. As the gastro-intestinal tract of infants is particularly susceptible to faulty absorption of such character, a large part of the therapeutic action may be developed along these lines by the administration of absorptive agents. Test tube experiments have shown that no marked influence is exerted on the growth of the ordinary bacterial flora of the intestine when such adsorptives are introduced. There remains, then, the possibility that the therapeutic effect may be due to an alteration in the ferment activity of the intestinal juices. In order to study this possibility the following experiments were made:

EXPERIMENTAL WORK

Human duodenal and upper jejunal contents were obtained from fresh postmortem material (supplied by Dr. E. R. LeCount). The intestinal contents were diluted with about three volumes of physiologic sodium chlorid solution and then filtered through several layers of gauze.

A. The influence on the rate of proteolysis of the intestinal contents when fullers' earth and kaolin were added is shown in Table 1.

TABLE 1.—RATE OF PROTEOLYSIS

Intestinal Contents C.c.	Noncolloidal Nitrogen Mg.
7.5	17.5
7.5	25.0 (48 hours digestion)
7.5 (with 0.2 gm. fullers' earth)	20.0 (48 hours digestion)
7.5 (with 0.2 gm. kaolin)	23.2 (48 hours digestion)

With fullers' earth the digestion was reduced to 33 per cent. and with the kaolin to 78 per cent. of the normal amount.

B. The diastatic activty was also decreased, as indicated in the following experiment: Five c.c. of intestinal contents were each mixed with 0.1 gm. of kaolin and of fullers' earth, incubated for thirty minutes, then centrifuged and the supernantant clear fluids titrated for diastatic activity. The portion treated with fullers' earth showed no diastase, while the diastatic activity of the kaolinized sample was reduced one half.

C. The lipolytic activity of the supernatant fluids gave the results shown in Table 2.

TABLE 2.—ACIDITY DEVELOPED FROM 1 C.C. ETHYL BUTYRATE

Intestinal Contents C.c.	Hundredth Normal Sodium Hydroxid C.c.
1	15
1 (with kaolin)	9.3
1 (with fullers' earth)	1.5

RESULTS

As this well recognized effect on ferment activity represents the only demonstrable change induced by the adsorptive agents, we must consider its possible relation to the therapeutic results observed. Two possibilities present themselves:

It is probable that in diarrhea, with its rapid sweeping of the intestinal contents through to the lower levels of the intestinal tract, some of the partially hydrolyzed protein split products are absorbed in this more permeable portion, with resulting intoxication. An inhibition of proteolysis, induced by means of the adsorptive agents, might counteract this.

Considering that the bacterial flora of the intestinal tract depends primarily on the nature of the substrate offered the bacteria for growth, which in turn is dependent in a large measure on the ferment activity of the intestinal secretions, it is conceivable that these agents affect the bacterial content indirectly. The greater the degree of hydrolysis of the starches and proteins, other conditions being equal, the more favorable the medium for bacterial development. If, therefore, the intestinal digestion is retarded, the rapidity of bacterial growth and the actual intestinal level of maximum bacterial activity may be appreciably modified. As clinical experience has found these adsorbents to be of value chiefly in the bacillary diarrheas, the latter supposition seems most probable.

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1. Hess, A. F.: Fullers' Earth in the Intestinal Disorders of Infants, THE JOURNAL A. M. A., Jan. 8, 1916, p. 106.

2. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and Its Antidotal Value for Alkaloids, THE JOURNAL A. M. A., May 29, 1915, p. 1838.

3. Friedberger, E., and Kumagai, T.: Ztschr. f. Immunitätsforsch., orig., 1912, **13**, 127.

FOREIGN BODY (BONE FRAGMENTS) IN THE BRONCHUS

TWO CASES TREATED EXPECTANTLY

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The aspiration of a foreign body into the bronchus is by no means a rare occurrence. The two cases reported herewith could not be called extraordinary instances. But the value of the experience lay in the failure to give due credit to the suspicion that a foreign body in the bronchus might be responsible for the intense disease reaction which subsequently arose in the lung.

Each patient, an adult, inspired a piece of bone into a branch of the right bronchus. Secondary lung processes were well developed before the patients were seen at the sanatorium. They were both treated expectantly with varying diagnoses until the bone fragments were spontaneously expelled. Then, with rapid recovery taking place, the diagnoses for the first time became clear.

What might have been done is speculative; but a discussion of the possibilities, anticipating similar future experience, seems worth while because the expectant treatment as carried out in the two cases cited was far from satisfactory.

In earlier years the expectant treatment was practiced with the hope that the patient would bring up the foreign body by coughing. Kuhn[1] collected reports of 374 cases, and the hoped for result occurred in only eighty-three. Garrè[2] states that the expectant treatment, with luck, may bring about inflammatory softening in the vicinity and may make the foreign body mobile again so that later it will be expectorated; on the other hand, we shall by this means expose many patients to the danger of serious pulmonary lesions with their less favorable prognosis.

Pneumonotomy has a dark record in Tuffier's[3] eleven cases, resulting fatally in four, and successfully in two, and without the foreign body being found in five. Garrè[4] recommends this operation only if the foreign body has penetrated far into the periphery of the lung or when it is wedged into a branch of the third degree; and then it is indicated only when bronchoscopy promises no more hope of success, and furthermore only when the Roentgen ray accurately ascertains the position of the foreign body. Halstead[5] found that with the use of bronchoscopy the trachea and bronchial tree down to the third subdivision of the bronchus are as open to ocular inspection as is the interior of the nose through the nasal speculum.

Discussing Tuffier's figures, Killian[6] believed that the seriousness of these data called emphatically for furthering the Killian method of bronchoscopy.

Killian,[7] in 1907, reported thirty-one cases in which the foreign body consisted of a piece of bone and which was observed through the medium of bronchoscopy. He had six such cases himself, and in every case he was successful in removing the piece of bone. While it appeared important to remove the inspired bone fragment as soon as possible, he found that three quarters of his cases were old ones.

With the development of direct bronchoscopy it would now seem a serious fault to make merely the diagnosis of lung abscess, bronchiectasis, or lung gangrene when there is even the least suggestion in the patient's history of the aspiration of a foreign body. Lord[8] states that "foreign bodies should be suspected in all cases in which there is circumscribed bronchopneumonia, bronchiectasis, abscess or gangrene of uncertain origin, and especially when the right lower lobe is involved.[9] Of great importance in diagnosis is the use of the bronchoscope."

The lung disturbances in our two cases were located in the inferior lobes on the right side, the common side. Garrè[10] found that the right side was usually elected, in a ratio of 100:78, because of the shorter right bronchus with its steeper course and somewhat larger lumen. Foreign bodies are therefore more easily inhaled into the right bronchus.

REPORT OF CASES

CASE 1.—J. A. S., man, aged 56, Nov. 29, 1911, was eating some pork, and was about to put his hand to his mouth to take out a piece of bone when he started to laugh. The piece of bone was inspired. He coughed hard for two hours. There was no pain or streaked sputum. Nothing much happened for the next two weeks except that he felt some shortness of breath on exertion. Then cough and expectoration began. He continued at his work, that of stationary engineer and fireman. About one month after the accident, expectoration increased in amount. The patient had to sleep in a chair in a semirecumbent position. He could lie only flat on the stomach, cough being persistent if he tried to lie on his back. There was irregular vesperal fever and malaise during January and February. He had poor appetite because on eating solid food he would cough and vomit. The weight declined from 145 to 127 pounds in four months; March 18, 1912, he was obliged to give up work on account of weakness. Cough would come on quite suddenly following slight exertion, and several times daily and nightly he would raise a quantity of thick, foul-smelling sputum. He complained of "heart weakness," and wanted to sit still, fearing the slightest move. The sputum was examined several times during March at the sanatorium and always was negative for tubercle bacilli.

On March 25, 1912, the patient raised about 1 teaspoonful of blood following a severe coughing fit. Soon afterward he coughed again, and the piece of bone landed on his tongue. On examination this fragment appeared to be roughly of cubical form. There was a small hooklike projection at one corner which, with handling, soon broke off. The composition was of spongy and cortical substance. The dimensions of the larger fragment were 15 by 10 by 11 mm. The detached smaller segment was about 3 by 1 mm.

For the next two or three days after expectorating this bone, the patient suffered considerable pain in the lung at a point about opposite the fifth rib just at the right of the sternum. It felt "like a boil coming to a head." The pain stopped on the third day when the patient suddenly expectorated several cupfuls of very foul, putrid, yellowish sputum.

After this event there was a rapid and steady improvement in the patient's condition. Cough and expectoration ceased. June 1, 1912, he was able to return to work. He regained all the weight lost before the end of the year. He has worked steadily up to this time, and is now in excellent condition, although he complained occasionally of "heart weakness."

A month or so after the trouble began, the patient sought medical advice. The common diagnosis appears to have been

1. Kuhn, cited by Latham and English: A System of Treatment, 1915, **3**, 803.
2. Garrè, Karl, and Quincke, Heinrich, Surgery of the Lung, 1913, p. 228.
3. Tuffier, cited by Killian, Gustav: Ztschr. f. Ohrenh., **55**, 334.
4. Garrè and Quincke: Surgery of the Lung, p. 231.
5. Halstead, Thomas H.: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1909, **15**, 399.
6. Killian: Ztschr. f. Ohrenh., 1908, **55**, 334.
7. Killian: The Treatment of Foreign Bodies in the Respiratory Tract and Esophagus, Tr. Am. Laryngol., Rhinol., and Otol. Soc., 1907, **13**, 73.
8. Lord, F. T.: Diseases of the Bronchi, Lungs, and Pleura, p. 34.
9. Lord: Diseases of the Bronchi, Lungs and Pleura, p. 35.
10. Garrè and Quincke: Surgery of the Lung, pp. 20-21.

"bronchitis." The patient was not satisfied with this opinion, since his cough "came on too quickly." He was examined five or six times by as many physicians. The latter evidently gave little credit to the patient's statement regarding the inspired piece of bone, and one told him that he would surely have coughed it up long before.

The patient was seen by a consultant at the sanatorium, March 30, 1912. The lung signs were those of lung abscess and associated bronchiectasis in the right lower lobes. The roentgenogram taken shortly afterward showed the abscess cavity in the right inferior lobe near the root of the lung with considerable surrounding infiltration.

CASE 2.—S. C., woman, aged 37, married, admitted to the sanatorium, April 20, 1916, was eating, Nov. 30, 1915, when a piece of lamb bone slipped down her throat and was inspired when she started to talk. There was a history of immediate cough and shortness of breath. During the five months' interval there developed malaise, weakness, severe cough and expectoration, loss of appetite, and loss of weight to the extent of 15 pounds. Two small hemoptyses had occurred. In February, 1916, she gave birth to a child. On admission to the sanatorium, examination showed lung disturbance pretty well limited to the lower right lobes. The apexes were clear and also the entire left lung. The lower two thirds of the right thorax was practically immobile and was flat on percussion. The sharp demarcation at the third interspace front from good resonance to flatness was extraordinary. In the midback, bronchial breathing was heard with moist râles diminishing on cough, while the breath sounds were absent at the base. Fremitus was increased over this whole area.

There were vesperal fever and rapid pulse rate. The sputum, 8 ounces per twenty-four hours, was negative for tubercle bacili on admission, and in all subsequent examinations. Specimens were put through the shaking machine, antiformin preparations, and guinea-pigs. Urine examination revealed the presence of a chronic interstitial nephritis. Blood count revealed 22,000 white blood cells and 3,200,000 red blood cells.

This patient remained a bed case in the ward about all summer with fever, severe cough and expectoration. Pain in the right side of "a scalding nature" was complained of. Her indispositions showed acute exacerbations with high fever, attendant rapid pulse rate and prostration. A feeling of suffocation was prominent. Fluid or pus being suspected at the base of the right lung, an attempted paracentesis was carried out with negative result.

Sept. 6, 1916, not quite ten months after the aspiration of the foreign body, the patient coughed up two pieces of bone. The larger fragment was of rough triangular form and measured 19 by 7 by 8 mm. Two of the angles were blunt, and the smaller fragment fitted approximately to one of these. The third angle was sharp. There appeared to be no recent cleavages other than the one to which the smaller fragment fitted. In composition the bone was cortical and spongy. The smaller fragment was only a spicule about 1 by 3 mm. in dimensions. Soon after the patient had brought up this bone her symptoms began to clear up. Oct. 14, 1916 she was discharged from the sanatorium against advice. She has since continued to improve in spite of the poor home surroundings into which she went.

COMMENT

Killian[11] states that cubical bodies are more difficult to remove. Bruenings devised a sharp hook forceps for this purpose. The pieces as a rule[7] are flat in shape, 14 by 15 mm. long and 8 by 9 mm. wide, lying with their long diameter corresponding to the axis of the bronchus.

In Case 2, roentgenoscopy was not performed. It is perhaps needless to state that had there been opportunity for a roentgenogram at the time of the patient's admission to the sanatorium, much valuable information would have been gained and there would have been less need of guesswork.

It is admitted[8] that the Roentgen ray is less valuable for the actual demonstration of bone and ivory substance than for metallic foreign bodies in the bronchi, a positive result being obtained among forty of the former sort in only four.

Garrè[12] states that while there is a shadow cast by the aspirated piece of bone, it is generally not sufficiently large or intense to differentiate from other parts of the skeleton. After a while the surrounding infiltration and the formation of cicatrices or abscesses will give the necessary information.

Killian[13] concluded that without bronchoscopy the presence and nature of the foreign body could not always be ascertained. The illness was often considered only an obstinate case of bronchitis. In many a slowly developed suppuration of the lung of uncertain origin finally a foreign body is discovered.

In America the use of the bronchoscope has been successful in the extraction of foreign bodies from the bronchi.[14] Yankauer[15] was obliged to have three roentgenograms taken before finding an indistinct shadow in the region of the left bronchus, attributable to an inspired prune stone which was extracted by the use of the bronchoscope.

Chevalier Jackson[16] states that the bronchoscopic removal of foreign bodes from the bronchi bloodlessly through the mouth has 96 per cent. successful results. Of 482 cases of aspirated foreign bodies, only four were recorded in which an upper lobe bronchus was invaded. Jackson's case was one of these four.

The contraindications are few,[17] namely, aortic aneurysm and severe cardiac decompensation.

The published descriptions of this good work, and especially of Killian's six cases,[7] in each of which a piece of bone was observed and eventually removed by bronchoscopy, furnish marvelous examples of the cleverest technic. The comparison between this method of treatment and the expectant treatment as experienced in our two cases has seemed to be worthy of general attention.

11. Killian: The Treatment of Foreign Bodies in the Respiratory Tract and Esophagus, Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1907, **13**, 74.

12. Garré and Quincke: Surgery of the Lung, p. 218.

13. Killian: Ztschr. f. Ohrenh., **55**, 115-116.

14. Jackson, Chevalier: The Dilatation of Bronchial Strictures, THE JOURNAL, A. M. A., Sept. 21, 1912, p. 1123.

15. Yankauer: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1911, **17**, 308.

16. Jackson, Chevalier: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1915, **21**, 241.

17. Lord: Diseases of the Bronchi, Lungs and Pleura, p. 37.

A Night and Day Camp.—The St. Louis Tuberculosis Society, according to the *Journal of the Outdoor Life* (April, 1917), has established what is called a Night and Day Camp, said to be the only preventorium for adults in the United States, and one of the few in the world. It is designed as a home for self-supporting girls over 14 years of age who have to stop work because of ill health. No cases of tuberculosis are admitted, but it is a place where girls who are threatened with tuberculosis may go for convalescence from an attack of some disease, or where one who is worn out and nervous may rest and recuperate. The features of the institution are rest, outdoor life and good food. There are no charges, the camp being supported by the tuberculosis society, from the sale of Red Cross seals and otherwise. Since February, 1913, when the camp was started, it has taken care of 182 girls, of whom 160 have been discharged. The average stay at the camp has been three months and twenty-eight days, the average gain in weight of the girls has been 11 pounds and 14 ounces, and the average cost per day per patient has been 74 cents.

TRAUMATIC ASPHYXIA

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Traumatic asphyxia (pressure stasis, ecchymotic mask) is a condition of sufficient rarity to justify reporting the following case:

REPORT OF CASE

W. L., man, aged 35, bridge builder, was injured, Oct. 21, 1916, while helping to make the connection between the top chords of a new truss which were being placed in final position. He was squeezed between the ends of the chords, which doubled him up and brought his head down on his knees. It was estimated by the patient that the weight of the end which came down on him was at least 7 tons. No accurate statement of the time this chord was pressing on him could be obtained. When I first saw him, within an hour from the time of the injury, he presented marked ecchymosis and swelling over the head and forehead and down to the malar bones. This area was dark purple and clearly delineated by an abrupt margin where the healthy color of the skin joined the swollen discolored part. Pressure did not affect the discoloration. There was a subconjunctival hemorrhage on each side which was bright red, contrasting strongly with the purplish discoloration of the adjacent tissues—a striking appearance. Rupture of each ear drum with hemorrhage from the ear canal was noted. Bleeding also occurred from the nose. There were a bruise of the right shoulder, slight bruises over the chest and abdomen of insignificant extent, and a fracture of the seventh rib on the right side. There was slight boss of the spine in the lower dorsal region, which was probably occupational, although the possibility of its having resulted from the injury was considered. There were no other evidences of spinal injury to confirm such a diagnosis. The patient was fully conscious and the reflexes were normal, with no evidence of cerebral injury. The pupils were equal and responsive to light and accommodation.

The diagnosis of traumatic asphyxia was confirmed by the subsequent history of the case. The discoloration of the skin cleared up promptly in three or four days, that under the conjunctivae persisting much longer. The patient recovered without untoward incident, leaving the hospital, November 8.

COMMENT

The pathology of these cases varies only in extent and degree, and depends largely on the amount of compression and the length of time it continues. It consists in discoloration of the skin from venous distention or hemorrhage in varying degree; subconjunctival hemorrhage, rupture of the eardrum with hemorrhage from the canal, epistaxis, and swelling of the skin. The latter and the discoloration also are limited to places which are not subjected to supporting pressure, and usually extend no lower than the clavicle, although in rare instances there is some discoloration in the axilla. Discoloration in the soft tissues disappears in the course of a few days; that of the conjunctivae at times persists for several weeks. Coincident injuries, of course, make the other pathologic changes different in each case.

The prognosis is usually favorable, recovery taking place in most cases quite promptly. It will depend, of course, to a large degree on the amount of pressure and the length of time which it is applied, as well as the gravity of coincident injuries. From the nature of the injury and its manner of occurrence, surgical aid can rarely be had immediately; when possible, however, the immediate use of artificial respiration and oxygen should be employed. Usually shock is slight, except when the accompanying injuries are severe. The subsequent treatment should consist in combating shock if it is present, keeping the patient at rest, and meeting indications as they arise.

Fourth and Chestnut Streets.

HERNIA OF THE BLADDER

REPORT OF A CASE OF STRANGULATED RIGHT FEMORAL INTRAPERITONEAL CYSTOCELE ASSOCIATED WITH AN ENTEROCELE *

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The large majority of bladder hernias are of the paraperitoneal variety. The relative proportion of the intraperitoneal and extraperitoneal varieties is difficult to estimate, as the different statistics undoubtedly show great variations. It is uncommon to diagnose bladder hernia before operation, and even at operation the condition is often not recognized until the bladder is injured. Such injury must be looked on as serious.

REPORT OF CASE

History.—R. L. T., woman, aged 54, white, housewife, married, entered the hospital, March 6, 1916, at 2 a. m., complaining of strangulated right femoral hernia. She had had eleven children, the oldest 30 and the youngest 7 years of age; all labors were normal. She had suffered from constipation for many years. Four years before she had noticed a lump in the right groin. It was not painful, felt soft and was about the size of an English walnut. When first noticed, the lump could be easily pushed back. She paid no attention to it. Six months before admission, the lump had increased in size, and felt tender, especially after physical exertion; but she was always able to reduce it after lying on her back. She had no urinary disturbances at any time.

When admitted to the hospital the patient was under the influence of morphin, and not in the mental state to render a recital of her history. The following was obtained from her husband and her physician: March 3, the patient had no bowel movement; March 4, she complained of abdominal pain, felt ill, and vomited whatever she swallowed; March 5, she took a dose of magnesium sulphate but threw it up and with it a large amount of bile; the colicky pains continued; the constipation remained and the lump in the groin was so tender as not to allow her clothes to touch it. The following day, she showed the following general symptoms of strangulation: anxious expression; sallow features; absolute constipation; vomiting; colicky pains; tympanitis; abdominal tenderness; moderate shock, and exhausted vitality. The voided urine was scanty and highly colored and was reasonably attributed to the intestinal obstruction. Hot applications and taxis failed to relieve the strangulation.

The patient's temperature on admission was 97, the pulse rapid and feeble, and the blood pressure 120. Examination revealed a lump situated under the right Poupart's ligament and below and to the outside of the spine of the right pubis. It was globular and about the size of a small hen's egg. It was hard, tense, tender, dull, completely irreducible, and the expansile impulse absent. The abdomen was tender, distended and tympanitic. No cystoscopic examination was made, as bladder symptoms were wanting. There was no strangury or hiccup. On catheterization 4 ounces of highly colored urine were drawn.

Operation.—I made an oblique incision 2½ inches long through the skin, beginning 1 inch above Poupart's ligament and extending over the inner and lower end of the hernial swelling, and unexpectedly exposed the hernial sac. Despite

* Abridged from a paper read before the Pasquotank-Camden-Dare County Medical Society, N. C., Nov. 1, 1916.

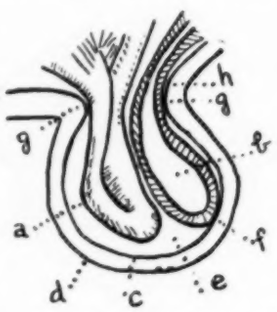
a careful search, I failed to find the usual coverings of the hernial sac—the cribriform fascia, the femoral sheath, and the septum crurale. Two points aided me in recognizing the exposed structure to be the sac: first, on drawing it gently down I could trace its neck into the abdominal cavity; second, I was able to insinuate cautiously the point of a director along it into the peritoneal cavity. The sac was rounded and dull, so dense that its contents could not be seen through it, and so tense that it could not be made to glide over its contents. No mass of extraperitoneal fat was present in the upper or inner portion of the sac. When the sac was pinched up and nicked, clear amber colored fluid escaped and was mopped away. When this nick in the sac was enlarged, an escape of clear straw colored fluid took place. This made me suspect that I had encountered a rare variety of femoral hernia in which two sacs had developed or a dividing sac was present. On further examination, however, the escaped fluid proved to be urine, and the edges of the wound revealed that the bladder was present in the sac and partially adherent to it. Its wall was accidentally wounded by curling over the edge of the director when the nick in the sac was enlarged. I swabbed the wound with sterile gauze soaked in ether and closed the wound of the bladder by a double layer of catgut sutures after freeing it from its adhesion to the sac.

The presenting intestine had the form of a small, tense knuckle. It was smooth, moderately shiny, deeply red, spotted with slightly purplish patches, and its vessels could be emptied by pressure.

The division of Hey's ligament and the bands of fibers which form part of the deep crural arch did not render the hernia reducible. The strangulating agent was the mouth of the sac, itself, which was found to be greatly thickened. In dividing this thickening I accidentally again wounded the bladder, and had to suture it after cleansing the wound with ether.

In the treatment of the sac and the closure of the crural canal I followed Bassini's method.

There is no sign of relapse of the hernia.



Diagrammatic drawing of hernia; *a*, intestine; *b*, bladder; *c*, sac; *d*, skin; *e*, serous exudate; *f*, point at which the bladder was adherent to the sac and was wounded in the first place; *g*, the strangulating agent, a thickening of the mouth of the sac; *h*, point at which the bladder was wounded in the second place.

COMMENT

This case is of interest because of:

1. The rarity of cases of femoral intraperitoneal cystocele.
2. The difficulties in recognizing the hernial sac, owing to the absence of its usual coverings.
3. The strangulating agent, which was a thickening of the mouth of the sac itself — a very rare seat of strangulation in femoral hernia.
4. The accidental wounding of the bladder in two places.
5. The reliance on ether as a valuable antiseptic, making the introduction of a drainage tube in the hernial wound unnecessary.

Cancer of the Mamma in a Man.—A. H. Roffo describes in the *Prensa Medica Argentina*, 1916, **3**, 81, the third case of this kind that has been published in Argentina. The man was a painter, a hard drinker, and eleven years before there had been intense pain around the left nipple, with much swelling and tenderness. These symptoms subsided under fomentations but returned at the same spot after an interval of eight years, much more intense, and an incision released pus. A hard tumor developed and ulcerated and in the course of three years showed malignant characteristics, with metastases in the liver. Eighteen illustrations show the microscopic and four the macroscopic findings in the case.

RADIUM THERAPY IN CANCER*

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The various steps in our knowledge of the physical and chemical properties of radium which have led to its use in the treatment of cancer, and the successive improvements in its mode of application are of much interest; but since they are not essential to the present purpose, detailed reference to them may be omitted. For the therapeutist the most important question concerning radium today is not how many cases of cancer this agent has cured, but whether it has in any sense a specific action on tumor tissue.

On cellular tumor tissue the action of radium is selective and specific, in the sense that tumor tissues are from four to seven times as sensitive as most normal tissues. Without notable inflammation of the skin, without extensive necrosis of tumor tissue, and without destruction of the normal elements involved, tumor cells may be made to disappear, and the tissue returns to its normal state. This view, first stated by Wickham in 1908, has been supported by many later observations, which have also shown that the result depends partly on the nature and condition of the tumor, but chiefly on the dosage of radium.

The morphology of the changes in tumor tissue following successful radium application is also specific. At least I have not seen such series of changes taken as a whole under any other circumstances; and when they are present in undisturbed course, it is possible to recognize a tumor tissue which has been treated by radium.

CHANGES FOLLOWING APPLICATION OF RADIUM

From material gathered in a series of uterine cases at different intervals, including two in which the organ was removed some weeks after treatment, the following changes leading to the disappearance of epidermoid carcinoma of the cervix may be traced: Within from three to five days after the application in the cervical canal of 300 mc. of radium emanation in a platinum tube, there is hyperemia of the tissues, beginning exudation of lymphocytes and polymorphonuclear leukocytes, and swelling of all the cells. In the second week the cords of tumor cells present a characteristic appearance. The nuclei are swollen, homogeneous, and hyperchromatic. The cell bodies are enlarged, the cells loosened, hydropic vacuoles appear in the cytoplasm, and fusion giant cells form. In the third week the number of cells is greatly reduced. Many appear to suffer liquefaction necrosis. Others are invaded and mechanically broken up or compressed by lymphocytes and proliferating stroma. From the fourth to the fifth weeks only pyknotic nuclear fragments or an occasional giant cell are visible, or no traces whatever remain. Meantime the stroma has been active and appears to take an important part in the process. Leukocytes become overabundant, the capillaries proliferate actively, and the stroma is transformed into granulation tissue in which numerous new capillaries penetrate and excavate the tumor cell nests. The gathering of leukocytes, lymphocytes, plasma cells and polyblasts in the later stages of radium reaction may be extremly profuse, and in this respect the reaction is somewhat specific. Eventually the site of the tumor

* Read before the American Association for the Advancement of Science, Section on Physiology and Experimental Medicine, Dec. 29, 1916.

is occupied by granulation tissue from which slight serous and cellular exudate is discharged. Later, epithelium grows over the denuded surface, completing the repair. All manner of variations occur in the reaction of tumor tissue to radium. Complete simple necrosis follows overaction of radium. Bulky tumors may present large areas of simple necrosis in which cysts form by liquefaction. The stroma as well as the tumor may be destroyed, in which event extensive scarring will result. In the foregoing scheme of changes it would appear that just enough radium had been employed to cause slow degeneration of tumor cells and stimulate regenerative growth of granulation tissue.

It is important to note that the best effects of radium do not consist merely in the killing of cancer cells, but that it may excite a slow and complex process in which stimulation of capillaries and fibroblasts and exudation of lymphocytes are prominent and even essential factors in the healing process, while the tumor cells may be slow to yield their places. Some of the most surprising and satisfactory results follow a single application of radium, although the patient may show little improvement for weeks or months. On the other hand, if repeated strong applications have destroyed the blood vessels and converted the base of the lesion into dense cicatricial tissue into which capillaries and leukocytes cannot penetrate, groups of tumor cells may resist the direct action of radium and become the source of recurrence. Under some circumstances it appears that the reaction of the normal tissues is a more essential curative factor than the direct action of the rays on tumor cells.

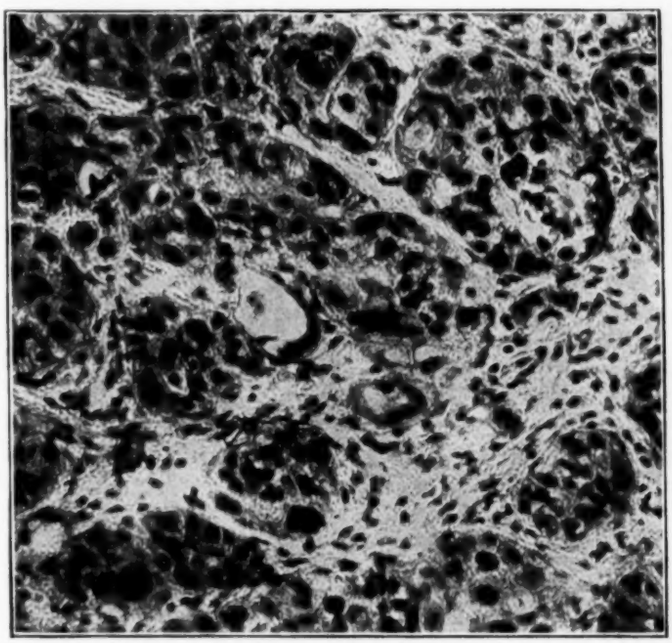

Fig. 1.—Cellular changes following radium: structure of epidermoid carcinoma of cervix uteri ten days after treatment; the changes consist chiefly in swelling and hyperchromatism of nuclei.

Another interesting feature of the healing process is the absence of scarring when the dosage is exactly adjusted. It is a rule that a tissue infiltrated by carcinoma cells is condemned to permanent damage from the desmoplastic property of the carcinomatous process. The smooth, supple tissues remaining in many healed cases present an exception to this rule and offer further evidence of the specific nature of the action of radium. It is of theoretical and practical interest also that bulky cellular tumors, as the abdominal metastases of carcinoma of the testis, may rapidly melt away in a few days without producing any sign of intoxication from the absorption of large quantities of tumor proteins.

The action of gamma rays obtained from heavily screened radium resembles a mild and prolonged beta ray effect, and depends of course on the intensity and duration of the exposure. The latent period may extend over from seven to ten days, the hyperemia increases slowly, degeneration of cells is gradual, the exudate is slight, necrosis of normal tissues is often avoided, and regeneration is prolonged often over several months. Numerous observations show much variation in the behavior of different tissues, lymphoid, and other cellular structures being most susceptible. The lymphocyte, the young fibroblast, capillary endothelium, and multiplying cells are the ones regularly attacked by heavy dosage.

Of the mode of action of radium, little is definitely known. It is a reasonable assumption that the gamma rays absorbed while traversing the tissues give rise to secondary beta rays, electrons, which act on the cells. That the action is electrical, accelerating cell ferments, ionizing gases, altering lipoid emulsions, etc., may be further conceived, but is not demonstrated. These questions may well serve to stimulate and aid in the study of the physics, chemistry and finer morphology of the cell.

Interpreted from the pathologic standpoint, the observed changes in cell morphology indicate an action directly on the tumor cell, and especially on it nuclear mechanism, with profound and progressive chemical changes in the nuclear proteins, attended by the formation of acid products and by the absorption of material, probably water. The appearance of the cell cytoplasm suggests hydrolytic cleavage of cell proteins, and these seem to excite leukocytic emigration. The growth of capillaries may be explained as a regenerative process following a loss of tissue equilibrium, or it may involve a direct stimulating action of the radium on endothelium and fibroblasts. In any event the process is very complex, and in many cases there are strong hints at a restoration of normal resistance of the connective tissue against lawlessly proliferating tumor cells. Several observers have noted that in the slow healing of epidermoid carcinoma there is a phase in which the malignant tumor approaches the architecture of a benign papilloma.

Lazarus-Barlow considers that the absorption of tumor cells affected by radium may establish a true immunity against their growth. The most pronounced traces of artificial immunity produced against tumors have followed the absorption of living tumor cells in the body. Radium induces such an absorption of living tumor cells.

Turning now to the practical aspects of our subject, it is necessary to ask what the advent of this highly remarkable physical agent has accomplished in the treatment of cancer, what the limitations of its use are, and what its future development seems likely to be. For as scientists we are not permitted to rest in

the pursuit of the highly interesting theoretical problems which radium thrusts on our notice, but some of us, especially medical men, must endeavor to enlarge the theoretical knowledge and apply it effectively to human needs. The great practical value of radium therapy, especially in cancer, has undoubtedly been the impetus for the study of the action of radium on animal tissues, and it should lend a peculiar zest to the much needed solution of many purely scientific problems in radium physics.

A glance at the position of research in the treatment of cancer by radium reveals that this study is pursued under peculiar difficulties which are wholly unknown in the scientific laboratory. While in some quarters unwarranted hopes have possibly been aroused by the initial results of radium treatment, I am able to find in recent accredited medical literature no exaggerated statements of its value. On the other hand, the public has repeatedly been warned against radium in the treatment of cancer, with serious damage to patients undergoing such treatment, and to others who might benefit from it. These warnings have regularly come from persons who have had little experience in the use of radium. To inform the public that radium has failed in the treatment of cancer is to misstate the facts, and entails a direct and serious responsibility. It is not too much to ask that the merits and demerits of radium be worked out within the medical profession, and that statements likely to reach the public should be carefully censored.

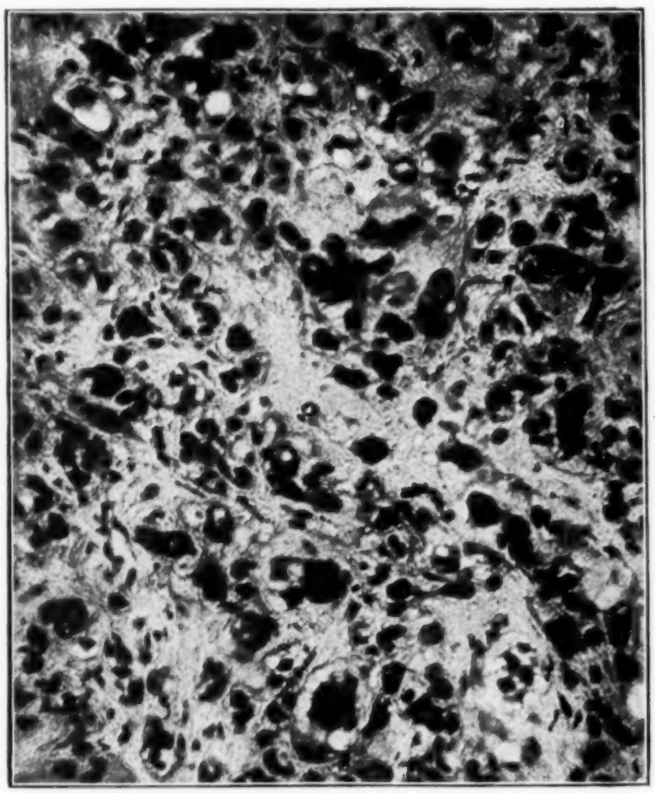

Fig. 2.—Cervical acanthoma two weeks after treatment, showing swelling and hyperchromatism of nuclei, with hydropic degeneration and fusion of cell bodies.

It is now some years since the value of radium in cancer was so fully demonstrated that, with the approval of leading physicians, numerous European cities began to devote public funds to provide their municipal hospitals with a working supply of this precious metal. Unless they have made a grave blunder, the American profession is behindhand in recognizing the actual position of radium, for which the American public will suffer.

The condition laid down by surgical opinion that radium must be tried out on inoperable cancer has generally been accepted, and on the whole is a wise restriction, especially for those beginning the use of this agent. With advanced and inoperable cancer of many varieties radium has more than justified the hopes aroused by its success with cutaneous tumors. Few clinics with sufficient radium and adequate experience have failed to secure some complete clinical regressions in apparently hopeless cases. Some surgeons who have witnessed the results obtained in advanced carcinoma of uterus, lip, tongue, rectum and prostate have determined to reduce the scope of operability in these fields and trust to radium as preferable to a mutilating and hazardous operation. Yet most workers with radium are not oversanguine of the capacity of radium to benefit permanently very advanced cancer. The effects of radium are confined to a limited territory; it cannot be expected to influence widely extended disease, and it has no effect on disseminated tumors. Moreover, the attempt to control a large territory leads to the use of excessive dosage, which may cause severe painful destruction of tissue, so that unfortunate results have sometimes followed the effort to deal with really hopeless cases. It is highly important that the limitations of radium in this group of cases should be recognized, that its failures in this field should not prejudice its claims elsewhere, and that only palliative efforts should be attempted when there is no possibility of reaching all the invaded tissues.

From the reports of cases now available in the literature, many of which I have seen duplicated at the Memorial Hospital, I am led to believe that the following indications for the use of radium in inoperable cancer may safely be stated when considerable quantities of the agent are available in the hands of an experienced operator:

Radium should not be withheld from rapidly growing deep seated and bulky tumors, for the cellular structure of many such tumors is just that most susceptible to the action of large amounts of radium applied at a distance from the skin and over long periods.

In those forms of cancer in which operation yields particularly unsatisfactory results, as in uterus (cervix), prostate, tongue, pharynx, antrum, and in lymphosarcoma, the scope of operability should be reduced and radium treatment preferred or employed in combination with a limited operation.

Cautious palliative treatment only is usually the safest limit in efforts to deal with very advanced cases of any type.

The untoward effects of overtreatment of inoperable cases may greatly aggravate the patient's sufferings, adding to the original condition severe and prolonged pain, sloughing of tissues, perforation of hollow organs, hemorrhage, infection and general intoxication. It is from such ill advised efforts that much of the current distrust of radium has arisen, and not from its proper use in suitable conditions. The combination of radium and surgery has been employed in many

clinics with encouraging results in borderline or inoperable cases, and offers an important field of research for the progressive surgeon.

THE TREATMENT OF OPERABLE CANCER BY RADIUM

Since radium has accomplished a clinical cure in certain advanced cases of cancer, why should it not be employed in operable conditions? The objections to this policy must be frankly stated and clearly recognized. They are, mainly, that all new methods of cancer therapy have inevitably failed, and only the knife has proved reliable; that certain so-called clinically cured cases have relapsed within a few months, and that it is morally unjustifiable to sacrifice the patient's chance from operation for an experiment by any new method.

The validity of these objections depends today entirely on the extent to which the ability of radium completely to destroy localized cancer has been demonstrated.

The capacity of radium to eradicate cutaneous carcinoma was early demonstrated and is now a routine experience in all large radium clinics, so that in many circles radium is the method of choice in dealing with rodent ulcer and epidermoid carcinoma of the skin. In certain derivatives of basal cell carcinoma, as the mixed tumor of the salivary glands, radium has had notable success, and should usually be employed in preference to operation. Yet there are many conditions in which cutaneous carcinoma may prove refractory. Among these may be mentioned recurrences after operation, carcinoma following lupus, invasion of bone, location near eye or nasal sinuses, or in thin skin over bony prominences, and after repeated ineffectual exposures.

Fig. 3.—Cervical acanthoma three weeks after treatment, showing excavation of degenerating tumor cell masses by cellular granulation tissue.

In carcinoma of the cervix uteri the results of radium treatment have impressed several well known and conservative gynecologists as highly favorable, and some say they are more favorable in borderline cases than the results of operation (Döderlein,[1] Bumm, Kronig and Gauss,[2] Schauta,[3] Chéron and Rubens-Duval,[4] Doppert,[5] Rupp,[6] Clark,[7] Miller,[8] and Kelly and Burnam[9]). Although the opportunity for such a demonstration is rare, it has been shown that radium is capable of destroying all traces of fully established or advanced cervical carcinoma. Schauta[3] showed it in eight badly overtreated cases. Chéron and Rubens-Duval[4] and Schmitz[10] each report one case fully studied microscopically one or two years after treatment in which no trace of carcinoma could be found in the pelvis. I can report two cases in which the uterus removed four and six weeks after treatment of well established carcinoma showed no traces of tumor cells in serial sections of the uterus. More conclusive still is the steadily increasing number of complete local regressions of advanced uterine cancer now being reported from many clinics. Since one of the chief advantages of radium therapy is avoidance of mechanical dislocation of tumor cells, the use of various adjuvants to radiotherapy, as preliminary cauterization, ligation of vessels, curettage, and subsequent extirpation of the uterus, seem to me wholly unnecessary or distinctly contraindicated. Rarely it may be wise to extirpate slumbering tumor cells from the outskirts of regressing cancer, but radium-treated tissues are unfavorable for surgery, and postoperative recurrences give poor results with radium. Yet this is a matter to be determined by clinical experience.

Chéron and Rubens-Duval[4] report 158 cases of uterine cancer, mostly inoperable, treated by massive doses of radium, with 93 marked regressions. Among these were 77 complete regressions, of which 22 have remained complete for from one to four years; 15 more date from less than one year, while 9 patients disappeared when well. There were 31 local recurrences, chiefly among those first treated, while 12 became operable and operations were performed, with results not stated.

Döderlein[1] reports on 153 cases, mostly inoperable and recurrent, of which 31 patients he regards as clinically well one year or more after cessation of treatment; 19 of these 31 were operable cases, and 12 were wholly inoperable. He used a maximum of 300 mg. of radium for twenty-four hour periods repeated once or twice at intervals of two weeks. He states that if these results prove permanent, operation on uterine cancer has played its main rôle.

Kelly and Burnam[9] report that of 327 inoperable uterine cases 20 per cent. gave complete clinical regressions, but the period of observation of many of these

1. Döderlein: Zentralbl. f. Gynäk., 1915, p. 185.
2. Kronig and Gauss: Deutsch. med. Wchnschr., 1914, pp. 740, 893. Gauss: Strahlentherapie, 1915, p. 379.
3. Schauta: Zentralbl. f. Gynäk., 1914, p. 961.
4. Chéron and Rubens-Duval: Strahlentherapie, 1915, p. 80.
5. Doppert: Zentralbl. f. Gynäk., 1914, p. 975.
6. Rupp: Deutsch. med. Wchnschr., 1914, p. 51.
7. Clark: Ann. Surg., **64**, 682.
8. Miller: Surg., Gynec. and Obst., **22**, 437.
9. Kelly and Burnam: Tr. Am. Gynec. Soc., 1916.
10. Schmitz: Med. Rec., New York, 1916, **90**, 100.

is short. Yet 13 have been under observation more than three years.

Schmitz[10] had 11 clinical cures in 35 inoperable uterine cancers.

Scherer[11] reports that 48 out of 58 uterine cancers treated by operation and radium were free from recurrence after three years.

Rupp[6] had 16 clinical cures of advanced uterine cancer.

Futh and Ebeler[12] report complete clinical regressions in all of 10 operable cases, and in 6 of 13 inoperable cases. With 10 recurrent cases they had rather poor results. The Ransohoffs[13] report 11 clinical recoveries out of 25 treated.

On the other hand, M. Hoffmeier[14] saw rapid extension of an operable cervical "glandular carcinoma" after seventeen days' treatment with 50 mg. of radium bromid, but it may be doubted if this observer understood either the use of radium or the nature of the tumor with which he had to deal.

Legueu and Chéron[15] report a complete anatomic cure of advanced carcinoma of urethra and vagina, the patient dying after two and one half years from a cosmetic operation.

Finally, Abbe,[16] the American pioneer in radium therapy, has a case of early cervical carcinoma in which the patient is well eleven years after treatment by curettage and radium.

I am much impressed by the conclusions of Doppert,[5] an experienced worker in Petrograd, who reports forty-eight uterine cases and recommends for (1) early localized cases, radium; (2) established or borderline cases, operation, because radium treatment is long and in such conditions uncertain; (3) inoperable cases, radium, and (4) advanced cases, neither radium nor operation. When such results as those now recorded may be obtained in advanced cases of uterine cancer, the testing of radium in early operable cases becomes inevitable.

Since the adenocarcinomas are more susceptible to radium than the epidermal tumors, and corpus carcinoma tends to spread widely over an accessible mucosa before infiltrating, there seems to be no good reason for excluding the 50 per cent. of surgical failures in this disease from the benefit of radium treatment. The danger of mechanical dissemination of tumor cells during hysterectomy must always be considerable. I once found tumor cells squeezed entirely through the uterine wall and lodged in the subserous lymphatics during vaginal hysterectomy for a fundus adenocarcinoma no larger than a 5 cent piece, the patient succumbing to recurrence, and I have never since been able to feel that surgery is particularly well adapted to deal with this disease.

The rectum stands fifth in the list of primary seats of cancer, and while carcinoma of this region has less frequently been subjected to radium therapy, there are satisfactory indications that it may be favorably influenced and sometimes controlled by radium. The majority of these tumors long maintain the form of a superficial fungating or papillary growth of wide dimensions, and may be reached by rectal applications, while demanding wide excision of an inaccessible and very necessary structure. Yet the rapid change from this comparatively benign process to the cicatrizing and infiltrating form converts a simple into a very difficult problem both for surgery and for radium, so that much care in application and judgment in the selection of cases are essential to success. In the Memorial Hospital series there are five complete clinical regressions of rectal cancer from radium, one of two years' duration, while four cases were improved, sixteen advanced cases were unimproved, and five are still under treatment.

Fig. 4.—Acanthoma of skin; excavation of tumor cell masses by cellular granulation tissue.

Buccal and lingual cancer resisted the earlier attempts at radiotherapy, owing to the difficulties of application pointed out by Wickham in 1912. The anatomic characters of carcinoma in these locations reveal many formidable difficulties to be met. There are broad superficial papillary growths which are ominous looking but yet localized, and there are small ulcerating and rapidly infiltrating lesions with early involvement of lymph nodes. The two forms of the disease present wholly different therapeutic prognoses. The former may be made to yield striking improvement and sometimes complete local regression by radium therapy. That infiltrating carcinoma of the tongue can be controlled by radium may for the present be doubted, but the external lesion may often be healed and the general course of the disease apparently retarded by careful use of this agent. On the tonsil, the pharynx, and the floor of the mouth, established cancer is usually beyond

11. Scherer, cited by Van de Velde: Zentralbl. f. Gynäk., 1915, p. 313.
12. Futh and Ebeler: Zentralbl. f. Gynäk., 1915, p. 217.
13. Ransohoff, Joseph, and Ransohoff, J. L.: Ann. Surg., 1916, **64**, 298.
14. Hoffmeier, M.: Zentralbl. f. Gynäk., 1915, p. 1.
15. Legueu and Chéron: Rev. prat. mal. génito-urin., 1914, No. 62.
16. Abbe: Med. Rec., New York, 1914, **86**, 909.

the reach of surgery and presents the same difficulties for radium as lingual cancer. Complete clinical regression of buccal and lingual carcinomas are reported by Heinatz,[17] Wickham, Dominici[18] and Morton.[19] In the Memorial Hospital series there are now ten such clinical regressions out of seventy-two cases treated, but the period of observation is too short to determine how permanent the result will be. Local recurrence or lymphatic metastases are to be anticipated in all the infiltrating cases. Yet since they were practically all inoperable, the results obtained are of considerable significance.

Labial cancer is favorably situated for radium therapy by cross firing, and many workers report successful results with this form of the disease. Some of them are now of sufficient age to be pronounced probably anatomic cures (Czerny and Caan,[20] Lit). Perthes has reported one case in which the patient has remained well for five years.

Lymphosarcoma and rapidly growing embryonal or anaplastic carcinomas as a rule melt away rapidly under the action of adequate quantities of radium, but since these diseases are usually constitutional or widely disseminated, the effects in general are to be classed as palliative.

One of the most distressing and fatal forms of malignant disease is osteogenic sarcoma, while its surgical treatment is extremely unsatisfactory. Pfahler's experience shows that these tumors may be strongly affected by the Roentgen ray, and there is good reason to believe that they may be more powerfully influenced by radium. Pearce Gould[21] reports a successful result in a periosteal tumor the exact nature of which has been questioned, while three other cases were only partially controlled. This field calls for further attention from radium workers. Benign giant cell sarcoma responds readily to radium.

Fig. 5.—Nearly complete replacement of epidermoid carcinoma of cervix by very cellular granulation tissue.

In mammary carcinoma, Barcat[22] reports that he has had complete clinical regression in five inoperable cases. In esophageal carcinoma the difficulties of application are great, but several observers have had encouraging palliative results, and Hill reports one clinical cure of four and one half years' standing.

Space forbids the full review of the results of radium therapy in many other forms of malignant tumors. Enough data have been reviewed to show that radium is capable of dealing successfully with many cases of accessible localized carcinoma, and has already done so in several of the most important types of the disease. Not all cases of localized cancer, however, yield to radium, possibly because the dosage is not properly adjusted.

LIMITATIONS OF RADIUM THERAPY IN CANCER

The difficulties in the way of successfully employing radium are numerous, and have greatly retarded the recognition of its value. Chief among these has been the frequent effort to cure hopeless cases by resorting to the caustic effects of the agent. Schauta's experience establishes a record for openly acknowledged mistakes, but has doubtless been duplicated by other beginners. In fact, it has been the usual story that a new worker with a modest supply of radium starts out by doing more harm than good. Hence the habit of lending a little radium to inexperienced persons who wish to see what it will do is to be deprecated as against all the interests concerned. Of Schauta's first thirteen patients with uterine cancer, eight suffered from necrosis of tissue, fistulas, and diphtheritic inflammation of rectum, bladder and ileum. In his third series of similar cases, eight of eleven were clinically cured.

Another prime obstacle is the failure to recognize that each case is a problem in itself, that very different types of cancer occur in the same organ, and that successful application of radium as a strictly local agent requires accurate knowledge of the anatomy of cancer in general and of each patient's tumor in particular.

Never has the present unpopularity of a knowledge of pathologic anatomy been so painfully exposed as in the published discussions in the past decade on the radium treatment of cancer. A knowledge of the natural history and anatomic features of different malignant tumors is a sine qua non for a really successful worker with radium. Yet many of the workers appear never to have dissected in the dead body any one of the tumors they elect to treat. Until this knowledge is provided by the operator, a fair test of radium cannot be obtained. Recently these considerations have been strongly emphasized by Heiden-

17. Heinatz: Russk. Vrach, 1907, No. 10.
18. Dominici: Comp. rend. Acad. de Sc., **140**, No. 26.
19. Morton: Brit. Med. Jour., 1911, **1**, 429.
20. Czerny and Caan: Handbuch der Radium-therapie, Wiesbaden, 1913.
21. Gould, A. P.: Brit. Med. Jour., 1914, **1**, 219, 274, 340.
22. Barcat: Strahlentherapie, 1915, **5**, 51.

hain, Döderlein[3] and Bayet.[23] Hoffmeier's[14] report, previously quoted, is an excellent illustration of the unfavorable results which may follow the indiscriminate use of radium in uterine cancer. A treatment effective with the ordinary form of epidermoid cervical carcinoma, which Aschoff likens to rodent ulcer, may well be powerless against a deep seated and disseminating glandular carcinoma. The radiologist has to consider the influence of anatomic relations, histologic structure, biologic type, duration of growth, and secondary complications in the tumor which he treats, as well as the physical condition of his patient. If radium had done nothing else than impress the necessity of a close analysis of tumor and patient, its advent in the field of cancer therapy should be welcomed.

The somewhat complex physical laws governing the action of radium, the variations in quantity, duration and distance in the dosages of different operators, the wide range of filters employed, the varying effects of alpha, beta, gamma and secondary rays, the conflict of opinion and advice between enthusiasts and uninformed critics, all have contributed a share in the confused history of radium therapy to date. What radium therapy most needs is the active cooperation of the workers and clinics, the standardization of methods and the concentration of the work as far as possible in large clinics thoroughly equipped with radium, technicians and trained medical specialists. The emanation has many advantages over the fixed tube of radium salt, and the standardization of methods will be greatly facilitated when the use of emanation becomes generally adopted.

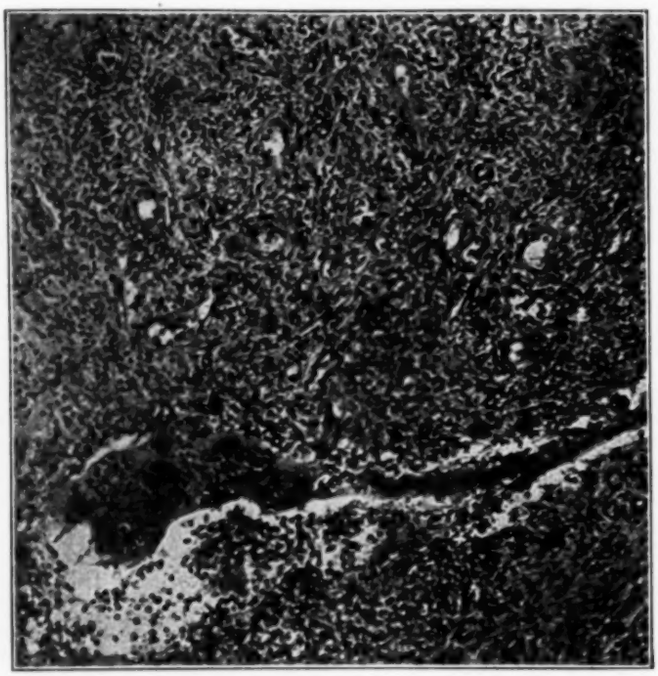

Fig. 6.—Destruction of fragment of epidermoid carcinoma of cervix by leukocytes and granulation tissue.

The mechanical difficulties in the way of accurately applying the proper quantity of radium to an ulcerating lesion of tongue, tonsil, esophagus, rectum, etc., are great, and call for extreme ingenuity on the part of the operator. Fixed tubes of radium salt are poorly adapted for such purposes. Small tubes of emanation are also difficult to apply with precision. The various expedients used to protect the normal tissues are still far from uniformly effective. Owing to all these technical hazards, the radium treatment of any tumor of a mucous membrane should be undertaken only by an experienced operator after careful study of the case. In not a few situations it is practically impossible to obtain a satisfactory application. In this direction lie the chief practical limitations of the method and a legitimate ground for the general feeling that radium is a dangerous agent in the hands of a tyro.

Acceleration of the growth capacity of inadequately treated tumors has been reported by some observers. Active growth of outlying cell groups which have escaped the lethal action is doubtless facilitated by the edema, exudation, and loosening of the tissues on the edges of the tumor; and the extent of ulceration may widen rapidly from necrosis of tissue due to the caustic action; a true stimulation of cell division, however, is not thereby to be assumed. The experimental studies of the Hertwigs[24] and Lazarus-Barlow and Beckton,[25] have shown that mitosis is inhibited by anything beyond extremely small dosage. Lazarus-Barlow speaks of an initial stimulation of tumor growth by radium and Roentgen-ray treatment, but I have never observed any such result, while the reparative growth of connective tissue in regressing carcinomas of which he speaks is a reactive growth following injury of cells. Wood and Prime[26] have endeavored to show that radium-treated mouse tumor cells when transplanted may grow more rapidly than controls, but their results were quite inconstant, and the extirpation of the exposed cells removed them from the attack by lymphocytes and granulation tissue, which are the main agents of tumor destruction set to work in the curative process excited by radium.

A more serious objection to the use of radium in advanced cases is found in the failure of long inflamed granulation tissue to heal after the tumor cells are destroyed. It appears to be necessary to attack the tumor before it has laid down much dense connective tissue; otherwise the normal reaction by cellular granulation tissue fails to occur, while the tumor cells resist the direct effect of the rays. Extensive deposit of cicatricial tissue following repeated applications of radium produces an indolent ulcer which refuses to heal, interferes with muscular and joint mobility, constricts vessels, nerves and hollow organs, and leaves an intolerably painful and distressing condition. The susceptibility of normal tissue to repeated applications of radium seems to increase, while the sensibility of tumor cells seems to diminish after several exposures. Hence the best effects in advanced lesions often follow a single massive dosage. The tendency to injure normal tissues by long exposure to large doses heavily screened is likely to place a limit on the successful treatment of deep tumors (compare Bayet[23]). In some forms of epidermoid carcinoma, streptococcus infection is an early and persistent feature of the disease. It is seldom favorably affected by radium. In fact, secondary infections in the edematous tissues about

23. Bayet: Strahlentherapie, **5**, 205.

24. Hertwig, A.: Arch. micr. Anat., **77**, 301. Hertwig, O.: Ibid., **77**, **82**.

25. Lazarus-Barlow, and Beckton: Arch. Middlesex Hosp., 1913; Brit. Med. Jour., 1914, **1**, 1001.

26. Wood and Prime: Ann. Surg., 1915, **62**, 751.

radium-treated tumors may completely prevent a successful result.

Recurrences after radium treatment have been rather notably frequent, and this fact should be kept in mind in estimating the significance of any series of cases

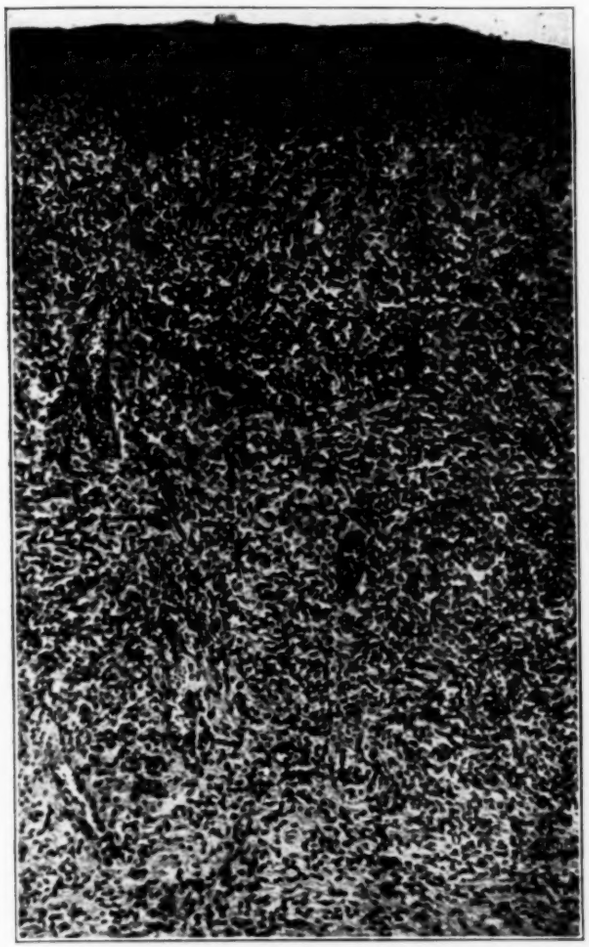

Fig. 7.—Complete replacement of site of epidermoid carcinoma of cervix by very cellular granulation tissue; the cells are chiefly lymphocytes and plasma cells.

recently treated. Among Chéron's seventy-seven complete clinical regressions of inoperable uterine cases there were thirty-one recurrences. They may appear promptly or be delayed for two years. Their source has often been traced in the persistence of islands of tumor cells lying on the outskirts or beneath the healed surface of the treated lesion. Many such cell groups probably become incarcerated in scar tissue and suffer gradual atrophy; but in advanced infiltrating lesions more distant groups often escape the effects of the usual dosage. A large proportion develop in distant lymph nodes which should either be treated with radium or excised. Considerable distrust of radium has been based on these recurrences, which may appear after apparently complete regression; but it should be recalled that they have been observed, with few exceptions, in advanced inoperable cases, and that there is no means of comparing their frequency with those following operation in less advanced cases. Their chief significance is in emphasizing the need of the usual period of observation before pronouncing any case a cure. They lessen but do not efface the great value of radium as a palliative agent, and many of them have been controlled by subsequent treatments.

Radium intoxication is a term applied to the phenomena sometimes following long exposure to large amounts of radium. The patients suffer from nausea and vomiting, extreme muscular weakness, feeble pulse and diminished urine. These symptoms rarely occur unless there is considerable necrosis of tissue, and bacterial infection, to which the intoxication must chiefly be referred. Brandt[27] observed symptoms of intoxication only in advanced cases, and regards it as a prognostic sign of the extent of dissemination of the disease. It is certainly more frequent in advanced and cachectic cases. Kolde and Martens[28] observed a fall in red blood cells for three days after long applications of mesothorium, and they recommend that time be given for the blood to recuperate. Prolonged radiation of the stomach or the vagus nerve is commonly followed by nausea and vomiting. Rapid absorption of large cellular tumors, however, may be accomplished without the slightest trace of intoxication, and large amounts of radium may be applied over the chest without any disturbance. The sources of intoxication must therefore be sought chiefly in factors apart from the direct action of radium.

It is thus apparent that the practical limitations to the use of radium in cancer are numerous and formidable, that in any but experienced hands it is a dangerous agent, and that until these difficulties are widely recognized or overcome a general recommendation of the use of radium, especially in place of competent surgery, is inadvisable. While the available supplies of the metal are so limited, and the indispensable skill in application so restricted, it would be

Fig. 8.—Site of cervical epidermoid carcinoma five weeks after radium: persistence of many lymphocytes and plasma cells in stroma, with beginning epidermization.

specially unwise to spread among the general public the impression that radium is ready to supplant surgical treatment of operable cancer. On the other hand, these precautions should not be permitted to stand in

27. Brandt: Zentralbl. f. Gynäk., 1914, p. 1441.
28. Kolde and Martens: Strahlentherapie, 1915, **5**, 127.

the way of the normal and legitimate extension of the radium treatment of cancer.

THE PROBABLE FUTURE OF RADIUM THERAPY IN CANCER

The progress of radium therapy in cancer has been so rapid, many of its results so paradoxical, and the time test of their permanency so important, that it is difficult to conceive just what position this method will eventually occupy. The possession of an agent which brings about the destruction of tumor cells without seriously injuring the contiguous normal tissue is a matter of great biologic interest, probably the most important single contribution of modern cancer research.

Radium, however, is only a locally acting agent, and it is difficult to see how it can be made to exert a universal action over the body or to affect the constitutional element in cancer. It is not, therefore, the ideal cancer cure which some have conceived and many demand before they will pay attention to new treatments for cancer.

The intravascular injection of radium deposit in salt solution is said to have favorably influenced lymphosarcoma, but there are no indications that a safe dosage in the blood can affect the more resistant types of disseminated tumor cells. There are, however, definite grounds for assuming, as well as some clinical proofs, that by increasing the quantity, the length of exposure, and the distance from the skin, many deep and locally extensive tumors may be inhibited and some may possibly be destroyed. Since bone absorbs but little of the gamma rays, a location within the chest, skull or bone marrow is no bar to this action, although carcinoma invading bone usually resists radium. A similar method of treatment of large superficial tumors completely eliminates the caustic action of radium and may prove sufficiently active to control the growth. Deep cancerous lymph nodes have already been strongly affected in this way, and certain large cellular pelvic and abdominal tumors have been found to yield promptly and, it would seem, completely, to the action of large amounts of radium at a distance. By such applications it appears not unlikely that the field of radium may be extended to certain tumors of the fasciae, muscles, bones, stomach and breast.

Fig. 9.—Persistence of groups of tumor cells incarcerated in fibrosing lymphatics of parametrium in epidermoid carcinoma of cervix, after radium treatment.

A constantly recurring question will be the propriety of employing radium in operable malignant tumors. Having long since demonstrated its capacity to control superficial cutaneous tumors, having justified its use as a palliative in advanced cancer and produced a considerable list of clinical or anatomic cures in cancer of uterus, rectum and lip, it would seem that radium deserves a trial in all accessible and strictly localized carcinomas. In this field it will be well to limit the trial to cases in which there is some contraindication to operation. In regions like the tongue and buccal or pharyngeal mucosa, where operation is mutilating and highly unsatisfactory, radium certainly deserves a careful trial in experienced hands. It must, I think, be frankly admitted from the demonstrable action of radium that as a rule the same conditions that are favorable for operation are also favorable for radium, and the sooner the comparative test of the merits of the two methods is made, the better it will be for medicine and for humanity. It is my opinion that the future position of radium is not to be merely as a palliative in advanced or recurrent cancer, in which capacity it is of great value, or as an adjuvant to surgery with which it may be used to advantage, but as an agent for dealing with certain forms of early and strictly operable cancer in which for particular reasons it may be found on the whole more satisfactory than surgery. One such field, the uterus, seems already to be defining itself. In stating this general opinion, I wish to emphasize that it is in the nature of a prediction for the future and not an estimate of the present position of radium. A direct inference encourages this belief. Early cancer is a localized disease and radium is a locally acting agent with a specific action on tumor cells.

It has been the experience of many workers with radium that they have first employed it in inoperable cases, then they have reduced the scope of operability, next they included operable cases in which there was some contraindication to operation, and finally, as their success grew and their skill and confidence increased, they have treated strictly operable tumors. Is, or is not, this a legitimate course to pursue?

In an important economic aspect radium offers a subtle advantage over the knife, which is the mental attitude of the cancer victim toward the treatment of his disease.

In 1805, Young of London wrote: "So long as the extripation of scirrhus of the breast is performed by the knife, so long shall we have the disease fostered in secret. For the operator may argue until doomsday ere he shall persuade his patient that cutting the breast with a knife is a mere nothing." Although this statement comes from the days before anesthesia and when nearly all patients died of recurrence, it is probable

that the fear of an operation still induces many oversensitive persons to hide the early signs of cancer until the disease is too far advanced for any hopeful treatment. If then, a simple application of radium can, in a certain proportion of cases, replace operation, and physicians can safely so inform their patients, there is little doubt that many more early lesions will be brought to light. Against the wisdom of such a radical step stands the obvious danger that any relaxation in the rule of early operation might be abused. I am far from recommending such a step at the present moment, but I believe that this consideration is one which we cannot afford to ignore in estimating the value of radium therapy.

Almost equally important as a cause of failure in the cure of cancer is the hesitation and delay practiced by many physicians in dealing with early lesions of doubtful nature. It is just in this field of precancerous lesions, hypertrophies, atypical inflammatory overgrowths, warts and polyps of mucocutaneous junctions, numerous leukoplakias, cervical erosions, nevi, and many accessible benign tumors, that radium is both efficient and comparatively free from danger. There need be no hesitation in recommending the employment of this agent by experts in such conditions. To what extent radium may establish itself in the treatment of operable cancer it remains for the future to decide. Radium therapy is in its early stage of evolution. During this evolution those who know what radium can do, who have a background of knowledge of what other methods can accomplish, and who are ready to enlarge or alter those methods if necessary, may safely be trusted to tell us when and how radium is to be used in cancer.[29]

477 First Avenue.

29. In addition to the references already given, the following will be found of interest:
Hardy: Jour. Physiol., 1903, p. 29.
Löwenthal and Edelstein: Biochem. Ztschr., 1908, **14**, 484.
Molisch: Wien. Akad. Wissensch., 1912, **121**.
Chambers and Russ: Proc. Roy. Soc., 1912, **5**, 198.
Perthes: Wien. klin. Wchnschr., 1914, p. 593.
Finzi: Lancet, London, 1911, **1**, 1339.
Hill: Brit. Med. Jour., 1914, **2**, 1017.

After-Care of Poliomyelitis.—Oct. 1, 1916, there were in the state, outside of New York City, 2,582 patients recovered from poliomyelitis. A plan for the care of these children was outlined in accordance with that carried out by the State Board of Health of Vermont, under the direction of Dr. Robert W. Lovett, Boston, who has supervised the work in New York. Up to January 1, fifty-three clinics had been held in various parts of the state, and 1,590 patients had been examined. Of these 182 were paralyzed prior to 1916; forty-nine had other orthopedic conditions, and no paralysis was evident in 186 cases. In sixty-six cases some form of operation was necessary in order to restore function. There were 352 health officers and 580 other physicians present at the clinics. For the purpose of providing follow-up care, the state was divided into eight districts, each in charge of a supervising nurse, four of whom had received special instruction in muscle training at the Children's Hospital in Boston, and four of whom had been trained by actual experience in clinics.

SOME FACTORS ALLEGED TO INFLUENCE THE DURATION AND SEVERITY OF VACCINIA *

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This paper gives the results of some experiments undertaken to determine what influence would be produced on the duration and severity of vaccinia by the use of different preparations of vaccine, and various methods of treating the vaccinia vesicle.

TECHNIC OF VACCINATION AND COURSE OF RESULTING VACCINIA

In order to secure uniformity, the following technic, discussed at length in a former paper,[1] was employed throughout this series:

The arm in the region of the deltoid insertion was washed with alcohol and dried with sterile cotton. A small chisel provided with a carbon steel point was sterilized by dipping in alcohol and flaming. Three circular scarifications, each 2 mm. in diameter, were made through the epidermis by rotating the chisel edge against the tightly drawn skin. A sterile toothpick was used to transfer a drop of smallpox vaccine from its containing vial to the three scarifications, and to rub it into the exposed derma. The site of the vaccination was then covered with a square of sterile gauze held in place by adhesive tapes on one of which was stamped the return date, five days subsequent to the day of vaccination.

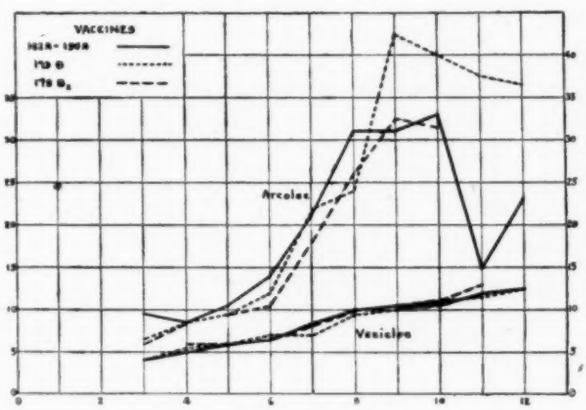

Fig. 1.—Comparative measurements of vaccinia lesions.

The vaccinia produced by this technic follows a fairly constant course. In a group of about 300 vesicles measured on the fifth day, the minimum diameter was 3.5 mm., the average fell between 6 and 6.5 mm., the maximum was 9 mm., while 70 per cent. were between 5.5 and 7.5 mm. The vesicle attains its maximum development on the eleventh day with an average measurement of 12 mm. Between the eleventh and the fifteenth day, the vesicle rapidly dries and shrinks to a brown scab which, in at least 60 per cent. of the cases, becomes loose enough to be easily detached by the twentieth day. The areola surrounding the vesicle closely parallels its growth until the seventh day, when it increases rapidly in size from an average of 10 mm. to an average of 40 mm. This sudden increase of the areola marks the rise of antibody formation; the vaccine organisms are digested, their toxic products give rise to the constitutional symptoms of fever and headache, while the change from vesicle to pustule marks the end of the vaccine colony. The areola rapidly shrinks to the size of the scab and gives color to the fresh scar, which averages 11 mm. in diameter.

* From the Laboratory of Hygiene, University of California.

1. Force, J. N.: An Investigation of the Causes of Failure in Cowpox Vaccination, THE JOURNAL A. M. A., May 9, 1914, p. 1466.

VACCINIA LESIONS

Produced by Various Preparations of Smallpox Vaccine.—In order to determine whether the lesions following vaccination were influenced by the method of preparation of the vaccine, a comparison was made of the average daily measurements of vaccinia lesions, produced in three groups of persons by three preparations of smallpox vaccine:

Vaccines 182 A and 190 A, after being ground in glycerin in the customary manner, were incubated at 37 C. (98.6 F.), in order to secure the development of contaminating spores and the subsequent destruction of the resulting organisms by the glycerin. Vaccine 179 B was exposed to the action of ether for two and one-half hours after being ground in glycerin. The ether was then driven off by a current of air and the vaccine held for two weeks, pending the result of the tetanus test. This vaccine had a high bacterial count when finally released for our use. Vaccine 179 B_2 was exposed to ether for three hours, and was practically sterile when released for our use.

The comparison of the lesions produced by the three types of vaccine resulted in the following conclusions, as shown in Figure 1:

1. The development of the vaccinia vesicle is remarkably constant, irrespective of the preparation of vaccine employed.
2. There is little choice between incubated and etherized vaccine, as far as local reaction is concerned.
3. The maximum areola formation was slightly greater in the vaccine with the highest bacterial count, but this excess was not enough to suggest that it might be due to the action of pyogenic cocci contained in the vaccine.
4. It would appear that a vaccine capable of passing the tetanus test might be released without reference to its total bacterial count.

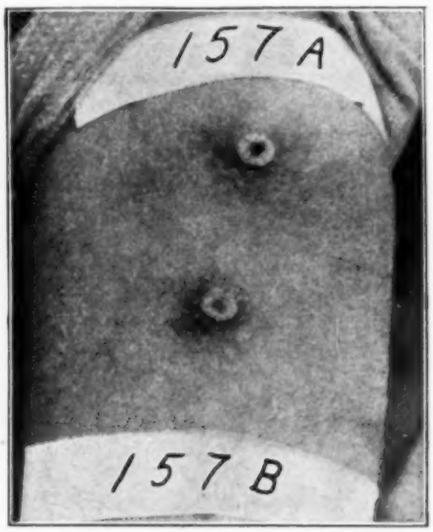

Fig. 2.—Vaccinia: upper vesicle produced by vaccination with ordinary glycerinated smallpox vaccine, lower by etherized vaccine; no marked difference in lesions.

Produced by Vaccinating Each Person in a Series with Two Preparations of Vaccine.—In order to determine whether the lesions following vaccination of the same person with two preparations of vaccine would show constant differences in favor of one or the other preparation, a comparison was made of the daily average measurements of vaccine lesions, produced by vaccinating each person in a series with the following preparations of smallpox vaccine:

Vaccines 156 B and 157 B were etherized as described above. Vaccines 156 A and 157 A were not incubated after grinding, but were stored until a satisfactory minimum bacterial count was obtained.

A comparison of the measurements listed in the accompanying table showed that there was no reduction in severity of local reaction, as would have been indicated by consistently smaller areolae obtained by the use of etherized vaccine. Figure 2 reproduces a photograph taken at the height of one of these vaccinias, and shows that there was no marked difference in the lesions produced by the two preparations of vaccine.

Comparison of Treated and Untreated Vaccinia Lesions.—Several methods have been suggested for reducing the amount of inflammation, shortening the course, and lessening the chances of secondary infection in vaccinia. Schamberg and Kolmer[2] advocate painting the vesicles at the end of forty-eight hours with a 5 per cent. alcoholic solution of picric acid.

DAILY AVERAGE MEASUREMENTS OF VACCINIA LESIONS PRODUCED BY ETHERIZED AND UNETHERIZED VACCINE IN EACH PERSON OF A SERIES

Days after Vaccination	Vesicles 156A-157A mm.	Vesicles 156B-157B mm.	Areolae 156A-157A mm.	Areolae 156B-157B mm.
4	4.5	4.0	5.5	6.0
5	5.5	5.0	8.5	8.0
6	6.0	7.0	8.5	11.5
7	6.0	5.0	8.5	8.0
8	9.5	10.0	27.5	25.0
9	9.5	9.5	23.0	25.5
10	9.5	9.5	19.5	20.5
11	10.0	11.0	33.0	37.0
12	12.0	11.5	21.0	20.0

Dyer[3] asserts that the proverbial "sore arm" is prevented and the scar reduced to a minimum by painting the vesicles, as soon as they appear, with tincture of iodin, clipping the top with sterile scissors, and cauterizing the base with a 6 per cent. solution of silver nitrate.

As soon as the vesicles appear, Unna[4] applies a mixture of eight parts of zinc oxid ointment with one part each of calcium carbonate and sulphur lotum. This, he says, prevents redness and swelling, and shortens the duration of the vaccinia.

In order to compare the results of these three treatments with the results of our usual technic, the methods of Schamberg, Dyer and Unna were employed for the treatment of vaccinia lesions beginning on the fifth day following vaccination. Measurements of the areolae, vesicles and scabs were taken whenever the subjects returned for dressings. A series of untreated lesions was measured as a control. The daily averages of all measurements were plotted (Figure 3) as well as the daily percentages of persons dismissed (Figure 4). A study of these charts brings out the following:

1. The course of a normal vaccinia is fairly constant; the maximum development of the antibody occurs on the tenth day, while the maximum scab separation takes place on the twentieth day after vaccination.

2. The average daily measurements of lesions resulting from multiple small insertions of smallpox vaccine were practically constant, whether the lesions were untreated or treated by any of the three methods described.

3. By the twentieth day after vaccination, 64.5 per cent. of seventy-eight untreated persons, 63.5 per cent. of seventy-five treated by the method of Unna, 70.5 per cent. of ninety by the method of Schamberg, and 72 per cent. of twenty-five by the method of Dyer were dismissed with the scabs off.

2. Schamberg and Kolmer: The Treatment of the Vaccination Site with Picric Acid Solution, Lancet, London, 1911, **2**, 1397.
3. Dyer: The Way to Vaccinate, Am. Jour. Trop. Dis. and Prev. Med., 1913, **1**, 425.
4. Unna: Naessende Ekzeme, Berl. klin. Wchnschr., 1915, **52**, 281.

4. It does not appear that any of the three methods tested possesses any great advantage over our method, so far as decrease in redness and shortening of the course of the vaccinia are criteria for judgment.

COMMENT

The experiments described above show that the duration and severity of vaccinia are not influenced to any marked degree by variations in the methods of preparing the vaccine or by treatment of the vaccinia vesicle. We are forced, then, to conclude that the vaccinia of long duration and marked severity is a result of improper vaccination technic.

At the opening of each semester at the University of California, a number of new students from distant portions of the state apply to the infirmary for treatment of the lesions following vaccinations by their home physicians. Observations, extending over several years, of the methods employed and results obtained in these vaccinations have convinced us that the subject of vaccination technic has not been completely mastered. The cross-scarified site, covered by corn plaster, vaccination shield, or even tightly drawn adhesive tape, represents the beginning of an improperly performed vaccination, as surely as a 6-weeks-old, dollar-size, slowly granulating ulcer typifies its close.

The first step in securing efficient vaccination is to acquire a more general knowledge of the pathology of vaccinia. For many years, the manufacturers of smallpox vaccine have been striving to give us a product which would be practically free of bacteria and yet retain its potency. The manufacture of a product of this character has no doubt been stimulated by a disposition on the part of vaccine users to attribute unfortunate results of faulty technic to "something in the vaccine." An English manufacturer was convicted some years ago of adding croton oil to his smallpox vaccine. His defense was that physicians demanded a sore arm on revaccination and, as the vaccine alone would not cause it, he was endeavoring to supply the demand. A better understanding of the normal course of secondary vaccinia, or vaccinoid, would have made such a demand impossible.

Smallpox is a septicemia. If the infection is severe, we have a true hemorrhagic condition with no tendency for the organism to become localized; if less severe, the smallpox organism is arrested in the skin and there destroyed. Pus is formed in the smallpox lesion as an end-product of the struggle between the antibodies and the arrested organisms. Its production is not influenced by the pyogenic cocci, present normally in the skin.

Only in the late stages was Roger[5] able to demonstrate bacteria in smallpox pustules, and their appearance then was by no means constant. According to Ashburn,[6] we may assume that the same relationship exists between smallpox and vaccinia as between the "street" and "fixed" virus of rabies. We should, therefore, expect to find a certain amount of pus normally in the vaccinia lesion, even when we employ a bacteria-free vaccine. Any excess over this normal amount would represent the results of secondary infection, not necessarily, from the pyogenic cocci, normal to the skin, since Roger asserts that they may be disregarded; not ordinarily from the vaccine, since Francis[7] has demonstrated the impossibility of conveying even tetanus to monkeys by means of artificially contaminated vaccine; but, from outside infection, made possible by a combination of faulty vaccination technic and improper care of the resulting lesions. This secondary infection is not the worst chapter in the whole disgraceful story. The victim, finally recovered from his "awful arm," secure in the belief that he is protected by a "good take," often falls a prey to smallpox, for the secondary invaders have destroyed the vaccine organisms, and his big scar is only evidence of a sloughing ulcer. However, he has not suffered in vain, for is not his history preserved in the archives of the antivaccinationists as another example of the "failure of vaccination to protect against smallpox"?

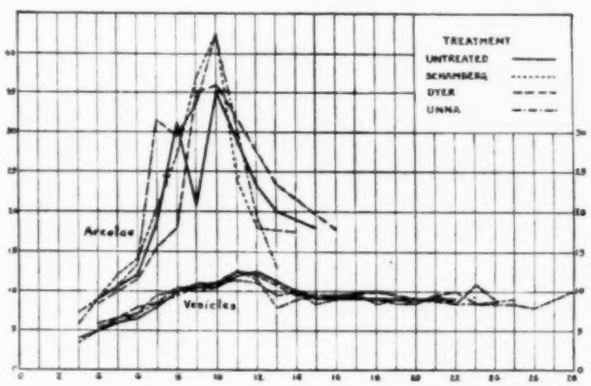

Fig. 3.—Comparative measurements of vaccinia lesions.

THE USE OF SMALL MULTIPLE SCARIFICATIONS

Given a smallpox vaccine of proved potency, we believe that, in persons previously unvaccinated, uniformly successful vaccinias, uncomplicated by secondary infection, may be secured by the use of small multiple scarifications. Although we read Jenner's "Inquiry," many years ago, it was only recently that we saw a photographic reproduction of his drawings of vaccinia, and we were much gratified to note the strong resemblance of our lesions to his "half pearl on a rose leaf." Since the vaccine colony grows only in unbroken skin, we wish to confine this growth to the smallest possible area for any one insertion. While Jenner was a consistent advocate of the small scarification, he was content to produce a single scar. Our choice of three points of insertion is in accord with the following statements made by McCollum, in a letter to Cody:[8]

> I am thoroughly convinced that there should always be three insertions of virus. Three reasonably good scars is a fairly sure indication of protection, but the mistake must not be made of thinking that because a person has a large scar it is an indication of successful vaccination.

During the Liverpool epidemic of 1902-1903, Hanna[9] made careful measurements of the scar areas of persons who had been vaccinated in infancy. His subjects were divided into two groups: persons who had never had smallpox, and smallpox patients. This study showed that the average scar area in persons who had never had smallpox was, for all ages, greater than the scar area of smallpox patients for corresponding ages.

5. Roger: Infectious Diseases, New York and Philadelphia, Lea Brothers & Co., 1903, p. 265.
6. Ashburn, P. M.: The Relationship of Variola and Vaccinia, THE JOURNAL A. M. A., April 19, 1913, p. 1220.
7. Francis: Laboratory Studies on Tetanus, Bull. 95, Hyg. Lab., U. S. P. H. S., 1914.
8. Cody: Vaccination Efficiently Performed, Boston Med. and Surg. Jour., 1914, **170**, 369.
9. Hanna: Studies in Smallpox and Vaccination, William Wood & Co., New York, 1913, p. 27.

Also, the average scar area of the group of smallpox patients was greater, for all ages, than the average scar area of those members of the same group who had confluent or fatal cases of smallpox. The maximum average scar area among persons who had never had smallpox was 1 1/10 square inch. The vaccination instructions of the Local Government Board of England call for one-half square inch of pitted surface

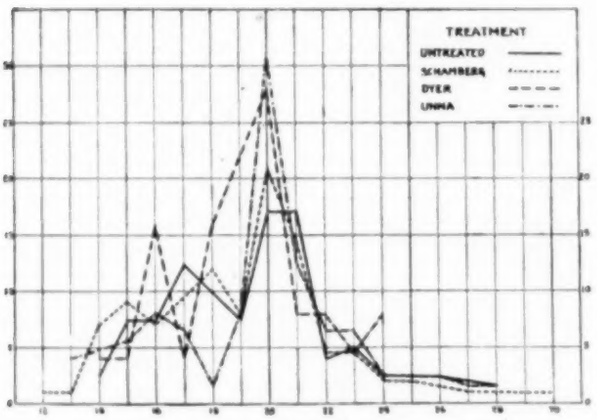

Fig. 4.—Dismissals.

(3 square centimeters), an amount which is approximated by the sum of the areas of the three scars produced by our method.

In sharp contrast is the result produced by a single cross-scarification. The exuding serum tends to form a crust which furnishes anaerobic shelter for possible secondary invaders, as tetanus spores; the large rambling vesicle is easily broken, and, since the vaccine growth is outside the central crust, there is every tendency for it to be cut off from nourishment. Here are combined in one lesion the possibilities of infection under the crust, infection of the skin beneath the broken vesicle, and a central slough with resulting slowly healing ulcer. Although the vaccination shield has a tendency to macerate the skin, through the action of confined moisture, there is some excuse for its use to protect the large rambling vesicle resulting from cross-scarification, since this vesicle is very easily broken. On the other hand, the small vesicles produced by our vaccination seem remarkably tough, and we employ a dressing which does not tend to delay the drying.

CONCLUSIONS

1. Severity of local reactions following vaccination is apparently uninfluenced by the method of preparation of the vaccine or the bacterial count at the time of release (Fig. 1).

2. The course of a primary vaccinia is apparently uninfluenced by treatment with antiseptics (Figs. 3 and 4).

3. The prevention of secondary infection following smallpox vaccination depends essentially on the use of small multiple scarifications which, when inoculated, give rise to small vesicles which are not easily broken, and do not foster anaerobic conditions and a central slough.

Progress in Society.—The gradual and steady improvement of social conditions and of all social and governmental institutions, and the gradual elimination of conditions which impede progress are the only sure bases of future progress.—Burdette G. Lewis.

THE ELECTROCARDIOGRAPH AS AN AID IN THE DIAGNOSIS OF CARDIAC VALVULAR DISEASE*

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NEW YORK

Although the electrocardiograph has been much used in the diagnosis of the arrhythmias and of myocardial disease, yet the use of the information which it gives in regard to the hypertrophy of the various chambers of the heart has been considerably neglected. It is my present aim to call attention to this information and to show how it can be made use of in the examination of the heart, and especially to show of what value it may be as an aid in the diagnosis of valvular lesions.

Each valvular lesion leads to the hypertrophy of one or more of the chambers of the heart, and this hypertrophy has an effect on the electrocardiogram of the individual. Hypertrophy of the auricle is shown by an increase in the height of the wave P, over 2 mm., as seen in Figure 1, being abnormal. Hypertrophy of the right ventricle is also shown in Figure 1, the electrocardiogram having the R wave turned downward by Lead I and upward by Leads II and III. Hypertrophy of the left ventricle is shown, as in Figure 2, by a record having the R wave of Lead III turned downward, while it is turned upward by Leads I and II.

Perhaps it might be well to define the term "lead." It is the method of leading off the heart's current from the body to the galvanometer. For Lead I the right arm and left arm are connected to the instrument; for Lead II the right arm and left leg, and for Lead III the left arm and left leg. By each of these leads there is obtained a slightly different curve, even from a normal heart, as is seen in Figure 3; but the curves are all alike in showing a small wave, P, due to the auricle, and a tall, sharply pointed wave, R, and smaller peak, T, both due to the ventricle. In records from normal hearts the R wave is directed upward in all

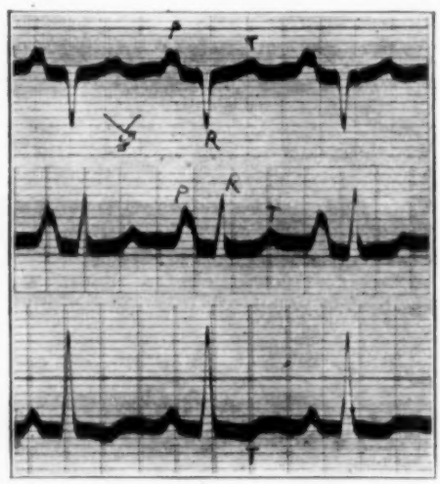


Fig. 1.—Record from a patient with mitral stenosis. In this and the succeeding records the time interval between the corresponding line of successive pairs of ordinates is one fifth second. The distance between abscissae—1 mm. in the originals—represents 1/10 millivolt. Records are to be read from left to right.

three leads, and in such hearts it has been found that the relation of the weignt of the left ventricle to that of the right ventricle varies from 2:1 to 1.5:1. If

* From the medical services of the New York Hospital, and the Department of Medicine of Cornell University Medical College.

either the right or left ventricle becomes hypertrophied, this proportion is disturbed, and the R wave of the electrocardiogram will vary accordingly, as has been described above.[1]

Dilatation does not disturb this mass relation of the ventricles, and therefore does not have this effect on the R wave — an evident means by which we are aided to distinguish hypertrophy from dilatation.

Suppose, then, that a mitral stenosis is suspected. The electrocardiogram should show the effect of the resultant hypertrophy of the right ventricle in a downward RI,[2] or perhaps of the hypertrophied auricle in an abnormally large P wave. If this sign of right side hypertrophy is absent, it should be considered as evidence against the presence of the mitral lesion. Figure 1 is from a case of mitral stenosis, and shows typically both of these signs — really the results — of this lesion.

When there is suspicion of an aortic regurgitation, we should expect to find, if the aortic leak is present, the downward RIII of left ventricular hypertrophy as in Figure 2, while the absence of this sign would point to the absence of the lesion.

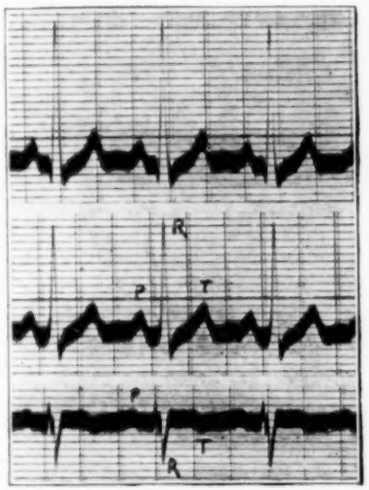


Fig. 2.—Record from a patient with aortic regurgitation.

Mitral regurgitation also leads to a hypertrophy of the left ventricle, so that a suspicion of this type of valvular disease would be confirmed by the finding of a downward RIII. Figure 4 is from an early case of this type, and shows a very small downward RIII, indicative of a slight degree of left ventricular predominance. When mitral regurgitation is of marked degree or of long standing, the left ventricle, even aided by the hypertrophy and dilatation which takes place, is unable to pass along the blood fast enough to prevent pulmonary stasis. This makes more resistance for the right ventricle to overcome, so that this also undergoes a hypertrophy. The result, then, is that, both ventricles being hypertrophied, the heart as a whole shows what might be called a balanced hypertrophy, and the mass relation of the ventricular weights is brought within normal limits. Figure 5 is typical of this, and shows, as is usual in such cases, an upward R wave in all three leads.

So much, then, for the simple cases with only a single valvular defect. When there is more than one lesion present it is necessary to consider the effect on the heart of each lesion separately, and to view the electrocardiogram in the light of this knowledge. When mitral stenosis and aortic regurgitation occur together, each acts to cause hypertrophy of one of the ventricles, so that the result is that a balanced hypertrophy is produced and the electrocardiogram is of the normal type. If a heart with evident mitral stenosis shows signs, such as a heaving apex beat, enlargement downward or an indefinite basal diastolic murmur, which cause us to suspect an aortic leak, then the finding of a downward RI will be evidence against this lesion, while if the R waves are all upward its presence

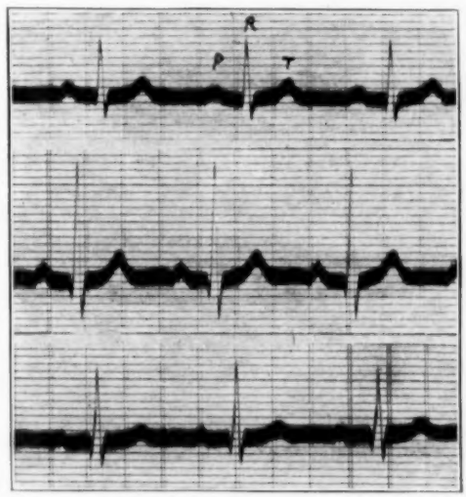


Fig. 3.—Normal electrocardiogram, from a patient with lobar pneumonia.

will be confirmed. With a plain aortic regurgitation and a diastolic rumble at the apex, it is often difficult to decide whether the latter is due to mitral stenosis or is a Flint murmur. If the suspected murmur arises by the mechanism described by Flint, there will be no effect on the right ventricle, and the electrocardiogram will show the downward RIII of left hypertrophy. If the suspected murmur is due to mitral stenosis, a balanced hypertrophy will be produced and an electrocardiogram will be of the type of Figure 3.

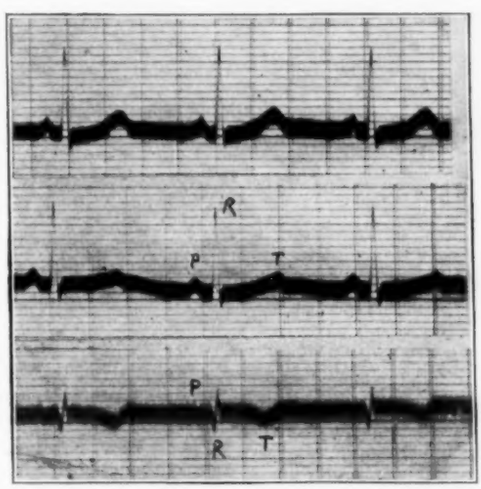


Fig. 4.—Record from a patient with an early stage of mitral regurgitation.

Remembering what was said about well marked mitral regurgitation, it is quite plain that aortic regurgitation or mitral stenosis when combined with this will become evident in the record by the presence of the hypertrophy which they characteristically produce. This fact is especially useful in deciding the character of the low pitched diastolic rumble often heard at the

1. Lewis: Observations on Ventricular Hypertrophy, Heart, 1914, 5, 367.
2. The Roman numeral following the letter refers to the lead by which the designated wave is obtained.

apex with mitral regurgitation, and especially commonly in young persons. Frequently this murmur does not arise from a mitral stenosis.

If the conditions are such as to lead to a marked predominance of either ventricle, the electrocardiogram is found to have the R wave of Lead II turned downward as well as the R of the lead typical for the hypertrophy. Thus aortic stenosis, which probably always has regurgitation associated with it, results in a record in which RI is directed upward, while both RII and RIII are downward. I have never seen aortic regurgitation alone show such an electrocardiogram.

Certain congenital lesions lead to a hypertrophy of the right ventricle. Patent ductus arteriosus, patent interventricular septum and stenosis of the pulmonic valve or artery are in this category, and the hypertrophy is usually of an extreme degree so that RI and RII are turned downward, while only RIII is directed upward. Other congenital lesions, as patent foramen ovale or interventricular bands, do not lead to hypertrophy, and can thus be differentiated from the conditions of more serious moment. This extreme degree of right ventricular predominance may also be produced in children by a mitral stenosis.

When using the electrocardiogram in this way, we must always bear in mind that increased blood pressure leads to hypertrophy of the left ventricle. This fact is easy enough to discount in the interpretation of the electrocardiogram, but should lead us always to take both the systolic and diastolic pressures before attempting to draw conclusions from the record.

These electrocardiographic signs of hypertrophy I believe to be quite reliable, and if a hypertrophy is found which is not explainable by the abnormal conditions which are evident, such as frank valvular disease of high blood pressure, I believe that we should carefully review the facts on which we have based the diagnosis of the valvular lesion, and that diligent search should be made to find some other factor which is not evident and which if present might be the cause of the muscular balance which appears in the record. Extracardiac factors should also be considered. Emphysema, pleural adhesions and pulmonary tuberculosis might be mentioned as extracardiac factors which lead to hypertrophy of the right ventricle, while marked physical exertion and more or less transient periods of increased blood pressure will cause hypertrophy of the left.

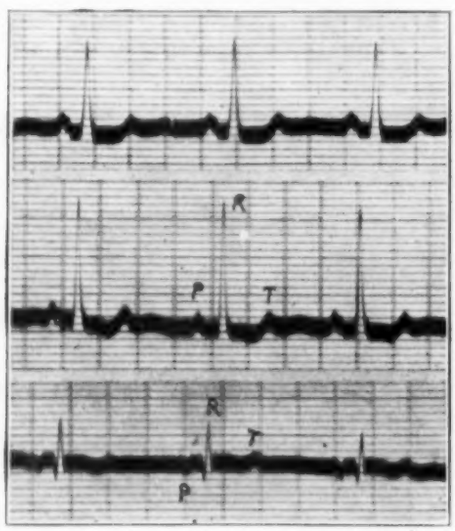


Fig. 5.—Record from a patient with mitral stenosis and aortic regurgitation.

A final word as to the relative value of a diagnosis of hypertrophy by the electrocardiograph and by the other methods of examination: Percussion of the heart borders and examination by the Roentgen ray give us information of the physical size of the heart as a whole. They do not indicate which portions of the heart are affected in this enlargement, and do not indicate whether the enlargement is due to hypertrophy or to dilatation. A heaving apex impulse or booming first sound is usually considered indicative of hypertrophy of the left ventricle, but is greatly subject to modification by the condition of the lung and of the chest wall. Nor is there any reliable indication of hypertrophy of the right ventricle; the right border of dulness means auricle, epigastric pulsation means low diaphragm, and so on. On the other hand, the electrocardiograph does not indicate the actual size of the heart mass except so far as it is not possible to have any part of the heart hypertrophy without increasing the total. This instrument shows the relative size of the different chambers, indicating that some factor has been operative in causing perhaps a hypertrophy of the auricles, or perhaps the predominance of one ventricle or the other, or perhaps that neither ventricle is predominant, and notifies the observer that some explanation must be forthcoming for the condition of the muscular balance which is found to exist.

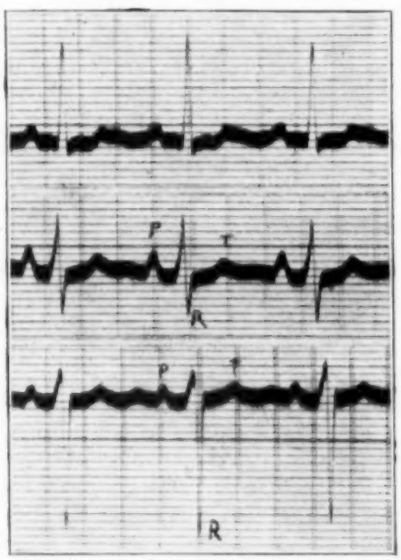


Fig. 6.—Record from a patient with aortic stenosis and aortic regurgitation.

SUMMARY

It may be said that the electrocardiograph will give evidence for or against the presence or absence of any single valvular lesion which is suspected, by showing the presence or absence of the ventricular hypertrophy which the lesion produces. In combined lesions, when one is plain and another suspected, it will again tell whether or not the suspicion is correct.

It will show whether or not congenital murmurs arise from serious structural defects in the heart. Lastly, it will help to tell whether enlargement is due to hypertrophy or to dilatation.

45 East Sixty-Second Street.

Habitus and the Viscera.—Man is not a creature of fixed physical characteristics. An infinite variation in bodily physique, in visceral topography, form, tonus and motility occurs. Certain types of physique are constantly associated with certain types of visceral topography, tonus and motility. Causes for such relationship may be recognized.—R. W. Mills, M.D., *American Journal of Roentgenology.*

Clinical Notes, Suggestions, and New Instruments

A WATER-COOLED RETRACTOR FOR USE WITH A CAUTERY IN THE MOUTH *

GORDON B. NEW, M.D., ROCHESTER, MINN.

Adequate protection of the lips and cheeks is essential in the treatment of malignancy in the mouth with a cautery. Protection is especially needed when heat is applied for a long time. The water-cooled retractor herein illustrated

Fig. 1.—Water-cooled retractor in place; wooden spatula protecting tongue preparatory to cauterization of epithelioma, alveolar margin and cheek.

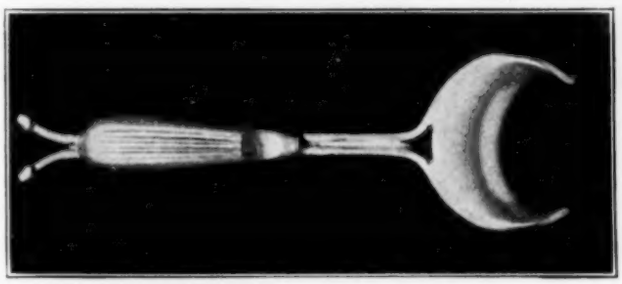


Fig. 2.—Water-cooled retractor, anterior view.

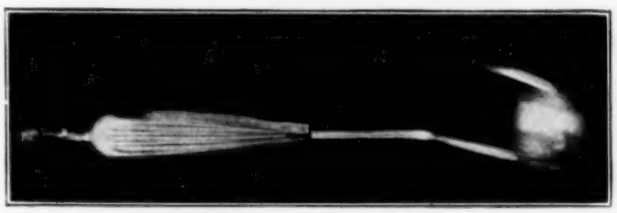


Fig. 3.—Water-cooled retractor, lateral view.

fulfils requirements, at the same time giving good exposure in the cauterization of growths on the alveolar margin.

The portion of the retractor coming in contact with lips and cheek consists of two layers of metal with a space between for the passage of water. The water passes in and out at the distal end of the handle of the retractor.

Soldering irons or an electric cautery may be used with this retractor, thus eliminating the necessity of a water-cooled jacket on the cautery handle. In this way a better view is obtained of the growth and the point of the cautery.

A wooden spatula is also used to protect the tongue in cauterizing growths of the jaws and cheeks.

* From the Mayo Clinic.

A NEW SPINAL CURVATURE BRACE

H. WINNETT ORR, M.D., LINCOLN, NEB.

In attempting to carry the principles of the Abbott rotation method for the treatment of scoliosis beyond the plaster jacket wearing period, I have found it practically impossible to derive satisfaction either for the patient or for myself from celluloid jackets or the spine braces now in use. For nearly two years I have been using and gradually improving the brace illustrated herewith. This brace gives definite control of the shoulders and hips and rotation pressure on the ribs.

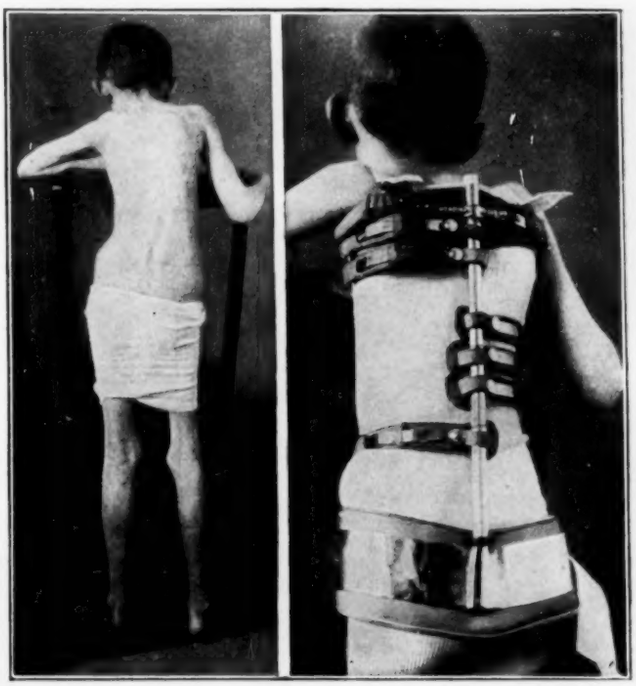


Fig. 1.—Patient without brace and with brace applied; this was one of the first braces made.

The brace offers several desirable features. It is infinitely adjustable for position or growth. Any part of the brace may be modified or even exchanged without sacrificing the brace as a whole. There is no constriction of the chest. Finally, with a firm grip on the shoulders and the pelvis, in the exact position desired, any degree of positive rotation pressure on the ribs may be obtained.

The brace is not offered as a substitute for plaster-of-Paris jackets applied as described (the Abbott method). I still use and shall continue to use the plaster jacket as the desirable treatment for most scoliosis patients before applying the brace. On the other hand, I believe that my brace is preferable in almost any case to a jacket applied in suspension. This is because this brace controls the pelvis and the shoulders in such a way that extension of the trunk with or without flexion of the spine and with true rotation pressure on the ribs may be obtained.

The brace is not recommended for advanced fixed scoliosis except when the plaster-of-Paris jacket is contraindicated or for any other reason cannot be used. Even in advanced cases, however, this brace will give a corrective tendency and a

degree of protection against further deformity which I believe it is impossible to obtain with any other brace.

I at first recommended that the brace be made on measurements of the girth of the pelvis, the length of the back and the width between the armpits only. It is my present conviction, however, that the most satisfactory control of the patient can be had only by making the pelvic portion or girdle fitted on a plaster torso of the patient. This can, of course, be made only by securing a plaster mold of the patient in the best position possible (in the Abbott frame if necessary), and then having the bracemaker pour the torso model into the mold so obtained. (It is still better to make and remodel the torso oneself.)

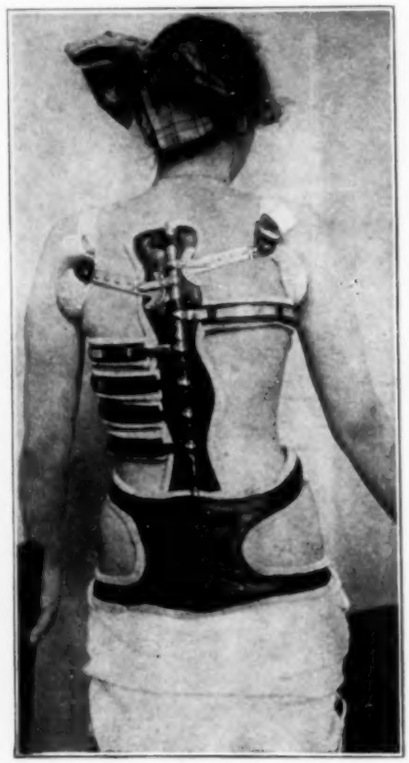
After the brace has been made, it is thus applied to the patient:

The nut from the top of the upright is unscrewed and the arm pieces, segments and rib-segments removed all the way down. The pelvic portion of the brace is laced (or buckled) on. Segments are now slipped on until the spine portion of the brace has been built up to a point at which it is desired to apply rotation (rib) pressure on one side or the other. A right or left hand rib is slipped on as desired, and then another segment without a rib. Next another rib segment designed to give additional pressure in the same direction or on the other side, as desired, is put on. To secure the desired amount of rotation, pressure on a rib convexity of any size requires a series of three or four rib segments (alternating with ordinary segments), all pressing in the same direction. An assistant standing in front of the patient holds these ribs in position as one puts them at the proper level and rotates them to the point desired. When the brace has been built up to about the shoulder level, the segment carrying the shoulder piece for the shoulder above the rib convexity is first put on and the shoulder (in the arm piece) rotated firmly backward. Then the shoulder piece for the shoulder above the rib concavity is put on and the shoulder well raised (this has been the low shoulder before) and carried forward. The final segment is now put on, and with the patient and assistant cooperating, the position secured is maintained while the nut is screwed firmly down, locking all parts of the brace securely in place. If now on careful inspection slight modifications of position are desirable, they can be obtained by bending the ribs or shoulder pieces slightly.

Any degree of flexion or extension of the spine may be provided for by bending the vertical rod before construction of the brace on the patient is begun.

This method gives definite improvement in practically all cases. Not all can be made straight or cured. The length of time required for maximum benefit is sometimes much greater than we thought when we first began using the Abbott method. But it is much the best treatment we have ever had.

A considerable number of patients treated unsatisfactorily in the pre-Abbott period have been treated with satisfaction since. I believe it to be the method that we should all learn and use if we are to give our scoliotic patients a real opportunity for improvement or cure.



Figs. 2, 3 and 4.—Patient with pronounced paralytic scoliosis and with brace. This is the style of brace now being used. The pelvic portion is adapted from a sacro-iliac brace first kindly furnished to the author by Dr. R. B. Osgood. It grips the pelvis firmly without discomfort. The other portions of the brace have been reinforced and are stronger, but not materially changed otherwise.

Whooping Cough.—An issue of the New York State *Health News* is devoted to the whooping cough situation in the state. Whooping cough, which is usually classed as one of the minor diseases of childhood, has carried off more lives in New York during the past five years than the much more dreaded scarlet fever. The total number of deaths from scarlet fever during the years 1911-1916 was 2,904, equivalent to an average rate of mortality of 5.9 per hundred thousand total population. During the same period 3,739 children died from whooping cough, which corresponds to an annual death rate almost 30 per cent. higher than that of scarlet fever—7.6 per hundred thousand. In the year 1916, whooping cough ranked next to measles as a cause of death in this state, taking almost as many lives as typhoid fever (593), and scarlet fever combined, 745. In the past ten years the death rate from whooping cough has fluctuated between seven and nine per hundred thousand, with only a slight downward tendency.

CAUTION AGAINST THE USE OF NON-NEUTRALIZED (ACID) SOLUTIONS OF SALVARSAN

JAY FRANK SCHAMBERG, M.D., PHILADELPHIA

A recent experience which has been brought to my attention prompts this note of warning against the advertent or inadvertent use of non-neutralized solutions of salvarsan. A physician administered to two patients, respectively, 0.4 gm. of arsenobenzol in 30 c.c. of water, *but failed to neutralize by the addition of sodium hydroxid solution.* Both patients developed alarming symptoms. The first patient complained of pain in the epigastrium, in the substernal region and in the left shoulder; later she had abdominal pains with nausea and vomiting. An irritating cough began which at the end of five days had not disappeared. The vein in which the solution had been introduced began to thrombose, and was thickened and painful for a length of 6 inches.

Immediately after the injection, the second patient developed cough and pain in the left shoulder, and the substernal and precordial regions. There was difficulty in breathing, and altogether the symptoms were alarming.

It now appears that these patients will recover, although a fatal termination might readily have taken place. It will be recalled that Fraenkel and Grouven, in the early days of the use of salvarsan, gave a patient 0.4 gm. in 15 c.c. of water; to this was added from 1 to 1.5 c.c. of a decinormal solution of sodium hydroxid. Despite this addition, the solution was still strongly acid. The patient died in three and one-half hours. The toxicity of acid solutions of salvarsan is lessened if they are given in great dilution. A year ago, a physician informed me that, acting under misapprehension of the instructions, he had administered arsenobenzol to two patients without neutralizing the solution; no reactive symptoms whatsoever developed. In this instance, however, from 100 to 150 c.c. of water were used. A few years ago, Prof. H. E. Hering of Prague called attention to the greatly increased toxicity of acid solutions of salvarsan as compared with alkaline solutions.

Dr. John A. Kolmer, Dr. George W. Raiziss and I, in a series of experiments, the publication of which is now in press, have shown that acid solutions of salvarsan administered intravenously in rats increases the toxicity from 50 to 60 per cent. This is true even in such concentration of the drug as is represented by from 0.5 to 1 per cent. solutions, the equivalent of 0.6 gm. in from 60 to 100 c.c. of water. The toxicity of acid solutions increases proportionately to the concentration of the solution. Max Joseph says that acid solutions produce a precipitate in the blood which may actually be seen in the lungs and in the right ventricle of experimental animals. The cough, which the patient referred to above developed, was doubtless due to the production of small emboli in the capillaries of the lungs.

It would seem that some physicians have confounded some of the salvarsan compounds which have been marketed under various trade names with neosalvarsan, and therefore have failed to neutralize the solution, an error which might have jeopardized the life of the patient.

1922 Spruce Street.

ESOPHAGEAL STRICTURE

J. J. SOUTH, M.D., MASSILLON, OHIO

J. S., boy, aged 11 years, drank about an ounce of lye late in February, 1916. He was given the usual demulcent and sedative at the time, placed on a bland restricted diet, and made what appeared to be an uneventful recovery. When able to eat almost anything he wished and seemingly in excellent health he was sent to his grandmother's in another town, and I did not see him again until July. One evening in the latter part of the month his mother carried him into my office in her arms. He looked almost moribund. He was nothing but skin and bones. His mother told me that he had eaten nothing in two weeks, and that during the last few days he could get but little water down. He complained incessantly of thirst, so I offered him water; but it would go down a certain distance and then be regurgitated. I tried to pass a small catheter bougie in order to relieve his immediate craving, but without success.

He was removed to the hospital immediately, and during preparation for operation was given water by bowel and venoclysis. Under ether the abdomen was opened through the left rectus incision, the stomach was drawn into the wound and incised, and a long rubber tube inserted. Owing to the patient's condition, it was impossible to attempt any operative procedure on the esophageal stricture, so he was returned to bed.

He improved steadily and was fed by tube: He was given liquids at first and then soft food. Finally he chewed solid food and spat in into the tube. Two weeks after the operation we began gradually dilating the stricture by means of bougies by mouth, and after a few days permitted the patient to take liquids and later soft foods in small quantities. It was not long until he took the regular hospital diet. As he swallowed it easily, the tube was removed and the fistula allowed to heal.

We kept the patient under observation two weeks longer, keeping the stricture dilated at regular intervals. I had in mind to discharge him one day when the nurse reported to me that he was unable to swallow and seemingly as much distressed as before the operation. I saw him at lunch. All food was regurgitated and a bougie could not be passed beyond the stricture area. It occurred to me at the time that we were dealing with a spasmodic condition superimposed on the true stricture. The patient was given a few drops of chloroform, and an unsuccessful attempt was made to pass a bougie; on regaining consciousness, he was still unable to swallow.

Preparations were then made to reinsert the gastric tube. While I was in another part of the institution, the nurse in my absence insisted on his attempting to swallow some liquid, which made him vomit, and he threw up a wad of chewing gum, the size of a small marble, and about as hard. I recalled to my chagrin that, against my better judgment, I had permitted him the privilege of chewing gum a few days before. He was entirely relieved and could swallow as well as ever. He was discharged a few days later, and up until the middle of November had remained well. The hard mass of gum had been stopped at the strictured area, where it acted as a perfect ball valve.

A NEW OCULAR MUSCLE SYMPTOM IN EXOPHTHALMIC GOITER

GEORGE FRANCIS SUKER, M.D., CHICAGO
Ophthalmic Surgeon, Cook County Hospital

In the examination of a number of exophthalmic goiter patients for the purpose of determining the relative frequency of the various eye symptoms and signs, this peculiar action of the lateral eye muscles was noted in many:

After extreme lateral rotation of the eyes, either to the right or to the left, with the head fixed and with fixation of an object at this point maintained for a second or two, on attempting to follow this fixation point as it is rapidly swung into the median line, one of the eyes—it may be either—fails to follow the other in a complementary manner into proper convergence and fixation for this point when it is brought into the median plane. Either the right or the left eye makes a sudden rotation into the fixation with its fellow, but before it does so, an apparent divergent strabismus is manifest.

A muscle balance for esophoria or exophoria was taken in each case. In those in which there was an exophoria of greater or lesser degree, this apparent divergence was more marked than in those cases in which there was no exophoria. This apparent divergence was not as marked in cases in which an esophoria of any appreciable degree was present.

For example, if after extreme rotation to the right and fixation of an object in this position, the object is rather rapidly brought into the median horizontal plane, the left eye follows the object properly, but the right lags behind in the corresponding rotation into median plane fixation, but it eventually jumps, as it were, into proper convergence and fixation with the left eye.

The object is to be held about 3 or 4 feet from the patient, in order that there may not be too great an effort for convergence. In other words, it must be held much beyond the point usually necessary for eliciting the Moebius sign.

This lack of complementary lateral rotation is also more marked, the greater the exophthalmos.

The apparent diverging eye, when it does assume the proper convergence and fixation, does so in a more or less jerky manner, in much the same way as the upper lid fails to accompany the globe in downward rotation in the von Graefe sign.

The more pronounced the other eye symptoms, as those of Stellwag, Moebius and von Graefe, the more evident is this inability in proper lateral rotation from either right or left to median line fixation.

Care must be taken, as mentioned before, first to determine the presence or absence of any degree of esophoria or exophoria and the probable presence of a paresis or paralysis of one of the lateral rectus muscles. In the latter instance the symptom could not be elicited, and in the former it is modified or accentuated, depending on whether there is an esophoria (modified) or exophoria (accentuated).

This sign has been found to be about as frequent in exophthalmic goiter patients as is the von Graefe or the Moebius sign.

It is due, no doubt, to the same underlying conditions that produce the other ocular muscle symptoms, namely, a dissociation in the functions of the sympathetic and the extraocular motor nerves of the eye. Perhaps, also, an element of muscle exhaustion on extreme lateral rotation of the eyes may be a contributing factor in producing this sign, or accentuating it.

A sufficient number of patients with exophthalmic goiter were carefully examined with reference to this sign to warrant the suggestion that it be looked for and considered as an additional sign in the category of exophthalmic goiter symptoms.

I have not seen any reference to such a sign in the literature on exophthalmic goiter. It may be designated as "deficient complementary fixation in lateral eye rotations."

25 East Washington Street.

PLEURAL EFFUSION, LARGELY CHOLESTEROL*

Maximilian Schulman, M.D., New York

This case is reported because of the unusual finding of 9.73 per cent. of free cholesterol in fluid obtained from the pleural cavity, the cholesterol constituting 56.1 per cent. of the total solids of the fluid.

A Russian Hebrew, aged 62, formerly a merchant, came to the Vanderbilt Clinic in September, 1916, complaining of a cough and sticking pain in the chest, of six days' duration. He felt entirely well in all other respects, did not think he was at any time feverish, and had his usual weight and strength. The family history was not relevant. The patient's habits always had been good. The past history was negative, except that, forty years before, the patient had had pneumonia associated with fluid in the right chest, which was once aspirated. His physician wanted to repeat the aspiration, but the patient objected, and fully recovered his health and strength without repetition of the aspiration. He had been entirely well during the ensuing forty years.

Physical examination revealed a healthy looking man, well nourished and having an excellent color of the skin and mucous membranes, 5 feet and 4 inches tall, weighing 159¾ pounds. The mouth temperature was 98 F., pulse 80, regular, full, tension 140 systolic, 90 diastolic, and respirations 24. Many teeth were missing, but the gums were healthy and the throat negative. The heart and abdomen were negative. There were no enlarged lymph nodes. The lungs showed flatness over the right lower lobe from the spine of the scapula to the base, but tactile fremitus was good over this area, as well as over the remainder of the chest. Over the flat area a vesicular respiratory murmur of much diminished intensity was audible. There was roughening of the respiratory murmur, with presence of medium sized moist râles at both bases. The extremities were negative; there was no clubbing of the fingers. The knee jerks were normal. The pupils were normal. The blood was negative. The blood Wassermann test was negative. Complement fixation for tuberculosis was negative. The sputum was negative for tubercle bacilli (two examinations). The urine was negative except for a very faint trace of albumin and an occasional hyaline cast.

While the patient was under observation, for a period of six weeks, his temperature was never above 98 F., and his weight increased from 159¾ to 165 pounds. The pain in the chest disappeared in about one week, and the patient felt entirely well. Roentgenoscopy revealed the heart drawn over somewhat to the right. The entire right side of the chest had a hazy appearance suggesting a thick pleura, and just below and to the left of the angle of the right scapula was a circular shadow, 1¼ inches in diameter, a little denser than the remainder of the chest.

By thoracentesis done just below the angle of the right scapula, after going through a pleura which felt leathery and seemed to be about half an inch thick, I obtained 5 ounces of fluid, when the patient began to experience sticking pain. Even though I gradually withdrew the needle as I continued aspirating, no more fluid was obtainable. I judged that I had about emptied the little cavity.

The fluid was thick, a lemon yellow, and cheesy looking. A drop of the untreated and uncentrifuged fluid, spread thin and examined under the microscope, showed the entire field densely packed with typical rhomboid crystals of cholesterin. When a little of the fluid was shaken with ether, the crystals were completely dissolved and the resulting fluid separated into two layers: the upper, the clear ether solution, and the lower, a yellowish translucent fluid, a drop of which, under the microscope, showed some granular débris and a very few granular round cells.

Obviously this fluid is the remains of the effusion of forty years ago.

Prof. Karl Vogel, of the department of clinical pathology, made a chemical analysis of the aspirated chest fluid, with the following findings:

Specific gravity	0.9181
Total solids	16.93 per cent.
Water	83.07 per cent.
Free cholesterol ($C_{27}H_{45}OH$)	9.73 per cent.
Protein matter	6.43 per cent.
Water soluble	1.57 per cent.
Including chlorids	0.05 per cent.
Total ash	0.68 per cent.

Cholesterol constituted 56.1 per cent. of the total solids. Phosphorus pentoxid was present in considerable quantities in the ash, mostly as inorganic phosphates, but probably also from a small percentage of lecithin.

The percentage of soluble matter in the protein was 24.44.

1845 Seventh Avenue.

* From the Department of Clinical Medicine, Columbia University, College of Physicians and Surgeons.

Device to Aid Respiration in Blizzards.—Minerbi refers to blizzards in the mountain altitudes where Italians and Austrians are now fighting. The wind blows with peculiar force and the respiratory apparatus is unable to work properly, as it is already suffering from the effects of the unwonted altitude. In one case reported in detail the soldier was scarcely able to breathe at all and for hours afterward he coughed and expectorated blood-stained sputum or pure blood. The device that remedies this is to punch with a nail some holes in the bottom and sides of an empty tin can, without a top. The mouth of the can is held tight over the mouth and chin, so that the wearer can breath through his mouth from a small area of quiet air. The principle is the same as that of the revolving hoods for a chimney. They swing around in the direction opposite the wind, so the ventilation proceeds constantly through a quiet zone of air. Minerbi's communication on the subject appeared in the *Rivista critica di clinica medica*, 1917, **18**, 113.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1179)

THE CLOTHING

2. A nephritic patient should avoid being chilled, since, if his skin is cold or chilled, internal congestions occur. As nephritis progresses the skin usually becomes dry, normal perspiration decreases, and in the later stages may be almost absent; consequently, that which tends to promote the health of the skin as an excretory organ is advantageous. Though warm clothing should be worn during the cold season, this does not signify that constant profuse sweating should be caused. The patient should be covered warmly, at night, but should have plenty of fresh air to breathe.

If possible, the winter should be spent in a warm, dry climate, that of Arizona, New Mexico or the central part of Southern California being preferable; or he may go to a more humid warm climate, like that of southern Florida, the West Indies, or the Hawaiian Islands. As a general rule, a hot dry climate is better for chronic nephritis than a cold dry climate, but either is better than a changeable moist climate.

Daily warm baths are of great benefit to these patients. If in a cold climate, the bath should be taken just before retiring. Hot, stimulating baths are not advisable; cold baths should be entirely avoided, and sea bathing or fresh water bathing, at any season of the year, in whatever climate, should be prohibited.

3. The skin should be kept soft and pliable by warm bathing and by exercise, and if exercise is impossible, by massage. If the skin becomes dry, oil of theobroma (cacao butter) or other bland oils should be rubbed into it. When, notwithstanding these measures, the skin ceases to be a good excretory organ, prospect of recovery is discouraging.

The greater the insufficiency of the kidneys, and the greater the amount of salt thrown off by the skin, the more itching there is likely to be. This itching is not as serious a sign as in liver disturbances and in jaundice, but may cause scratching and consequent eczema. Anything promoting circulation in the skin, such as warm baths, gentle massage or the rubbing in of oil, tends to prevent or stop the itching. Any particular eczematous spot should be treated as any other eczema with a local sedative, or, if necessary, with stimulating ointments. The water used for bathing should be as soft as possible — bran may be used to soften it. The skin should be dried with soft towels.

4. Hydrotherapy promotes the normal excretion and health of the skin. Another indication for hydrotherapeutic measures is obesity and high blood pressure. The extent to which these methods should be employed depends entirely on the sufficiency of the circulation. If the heart is weak, even though the blood pressure may be high, only the mildest water treatments should be used. The Turkish bath is perhaps the most popular of the severer hydrotherapeutic measures. If the patient is obese, reacts well, perspires freely, and rests after the treatment, such a bath taken once a week is beneficial to him. He should be allowed to drink plenty of water after this bath so that the urine will not become too concentrated from the withdrawal of water through perspiration. Severe cold applications after such baths are inadvisable. Unless the kidneys are severely injured, the principal excretion by the skin is water, with a certain amount of sodium chlorid. Other salts are excreted only in minute quantities. If edema occurs, the only heat baths advisable are the electric light cabinet baths, or body baking, and the cabinet bath has really superseded the body bake, as exhausting the patient less and having a less injurious effect on the heart. These measures reduce the blood pressure, temporarily at least. Provided these measures are adapted to the circulation, they are beneficial and relieve kidney congestion to a certain extent. These baths are not needed in warm climates. Care should be taken that the patient does not become chilled or catch cold afterward. The majority of patients, however, will derive as much benefit from warm baths taken at home, especially if followed by massage, and if the diet is suited to the patient's condition and weight. If a patient thus "knocked out," so to speak, by the severity of the treatment, is very thirsty, and drinks a considerable amount of water, or is very hungry and eats too much, and if the blood pressure immediately rises to its former height, the benefit derived is reduced to a minimum. These measures are most emphatically contraindicated in any patient with cardiac insufficiency, or who is prostrated by the treatment.

High frequency current treatments to reduce blood pressure are inadvisable for a patient with chronic nephritis. The blood pressure is reduced only temporarily, if at all, and the patient is often made nervous by these treatments. Other measures to reduce blood pressure are preferable.

The administration of radio-active waters for chronic nephritis is still so little understood that their value can neither be asserted nor refuted.

The application of hot packs and other local heating measures in chronic nephritis will be described under the treatment of uremia, as they are indicated only in uremic conditions.

Carbonic acid baths, whether taken at springs and cures, or under artificial conditions at home, should ordinarily not be used in chronic nephritis. It should also be remembered that hypertension is only one symptom of chronic nephritis, and whether or not such baths are valuable in the treatment of some forms of hypertension is not now under discussion.

5. The amount of exercise that a chronic nephritis patient should take depends on his circulation and weight. If he is overweight, and his circulation is good, considerable exercise should be taken, until good, healthy perspiration is produced, after which a warm bath and rub-down are advisable. If he is on the borderline of kidney insufficiency, overexertion may readily cause an imbalance, and any severe muscle strain or hard muscle work may precipitate uremia. The value of vigorous exercise used in a man's business or prescribed when his work is sedentary is to increase muscle nutrition and muscle circulation, to relieve the congestion of the organs of metabolism and excretion, and also to prevent the increase of fat. By such exercise, too, the circulation of the skin is increased and the skin excretions become more normal. If a patient has a weak heart or the blood pressure is high, exercise must be carefully regulated in order to aid and not injure him. The Oertel graded exercises should be modified to fit the individual. If he feels full-headed and has throbbing in the chest or cardiac pain and the blood pressure is increased, the exercise is excessive. If the blood pressure is too much lowered by exercise, it must be modified.

6. If the bowels do not move daily and thoroughly in chronic nephritis, they must be stimulated artificially. Daily catharsis is not necessary, and is harmful. If the patient is obese, a saline preparation taken daily before breakfast in sufficient amount to cause one or two movements may be the best treatment, depending on the amount of intestinal gas that it causes; if a large amount of gas is caused, a vegetable cathartic should be substituted. If the patient is not obese, the blood tension not excessively high, and the kidneys excreting fairly well, a daily vegetable laxative drug, as cascara, aloin, rhubarb or podophyllin, or any combination of these drugs, is much better. Phenolphthalein should seldom be used in chronic nephritis. If the bowels can be regulated by the diet, that is, by the use of fruit, agar agar, whole wheat bread or bran bread, this is preferable, and no drug should be administered. Liquid petrolatum may be used for a time, if satisfactory, but when used very long it is liable to inhibit the secretion of the stomach and intestinal digestive juices, and to cause indigestion. It may make the excretions so oily that the sphincters do not act perfectly, much to the discomfort of the patient.

Once a week, unless the bowels move freely, catharsis may be caused by calomel and a purgative, by castor oil, or by a large dose of saline. The best time to take this is on the day on which the patient should ordinarily reduce his diet to the minimum, in other words, on a skimmed milk day. Retained nitrogen and salts are thus excreted by the bowels and kidneys, and the patient starts the week in a sanitary way, even though his kidneys are imperfect.

7. Besides laxatives and iron, when indicated, as little medication as possible should be given in chronic nephritis. The various measures suggested for the control of this disease will for a long time preclude the necessity for using drugs. If a hypnotic must be given for a short time, bromids or chloral should be selected on account of the usual high blood pressure. The synthetic hypnotics should ordinarily not be used, although an occasional dose of veronal-sodium or luminal may be employed. In high blood pressure nitroglycerin at night frequently induces sleep.

If the blood pressure is not kept down by physical methods, diet, etc., nitroglycerin, in a dose of $\frac{1}{200}$ to $\frac{1}{100}$ grain, three, four or five times a day, as found necessary, will almost invariably lower the blood pressure, unless the patient is uremic. If the patient is obese, especially if the skin is dry, the heart slow and the blood pressure high, 1, 2 or 3 grains of thyroid, given each morning, will prove beneficial, the dose depending on its effect on the patient. If it causes nervousness, sleeplessness or rapid heart, the use of the drug should be discontinued. Its purpose is to prevent the addition of weight, to lower the blood pressure, to stimulate the skin, and to aid in the detoxication of retained products of nitrogen metabolism. In nephritis occurring at the time of the menopause in women with signs of subsecretion of the thyroid, thyroid medication is very beneficial.

If the patient has no appetite, some simple bitter tonic may be given before meals; or, 1 grain of quinin sulphate may be given in capsule three times a day, with or without 1 grain of reduced iron.

If any coincident condition occurs in a patient with chronic nephritis, it must be treated as usual, with the exception of greater care in regard to the use of drugs. Any drug known to irritate or injure the kidneys should not be given. Iodids should ordinarily not be prescribed; arsenic usually is harmful; phenyl salicylate or any other salicylate is inadvisable. Codein may be used to alleviate pain, and morphin if the pain is severe; but one must always be extremely careful in the use of narcotics in chronic nephritis. Coal-tar products should be given only in very small doses. Digitalis, if used, should be given in small doses and with great care. In cardiac insufficiency it may be of great benefit; but if the kidneys are much impaired it may do great harm. Caffein in any form may act as a temporary diuretic, but it is liable to cause, secondarily, diminished secretion of the kidneys. It should not be given in high blood pressure, but may be used in acute cardiac failure.

The treatment of cardiovascular-renal disease has already been described.[107]

One is seldom justified in giving a so-called diuretic in chronic nephritis. It is inadvisable to stimulate an impaired organ, but if alkalies are indicated, potassium citrate may increase the output of urine, temporarily at least. Theobromin sodium salicylate is one of the least irritating of the caffein group, but often proves unsatisfactory in reducing edema or in increasing the output of urine.

Christian[108] has shown that theocin has no constant diuretic action. It may or may not cause slight diuresis when a patient has no edema. It generally causes diuresis in cardiovascular-renal disease with edema, and also increases the sodium chlorid excretion. The nitrogen execretion is much less increased, for even when diuresis is caused, Christian finds that the kidneys may later show a decrease in nitrogen excretion, or a kidney tire; therefore, the only condition in which to use theocin, one of the strongest of the newer so-called diuretics, is in cardiovascular-renal dropsy, when it should be used only intermittently and perhaps in conjunction with digitalis.

Large doses of thyroid extract may prevent convulsions and may aid in saving the life of a patient suffering with uremia from acute nephritis or with puerperal eclampsia.

There is no doubt that in the majority of cases the proper management of chronic nephritis will prolong the patient's life by months, and perhaps years. Partial uremic attacks may occur during the course of chronic nephritis, and by proper measures the patient's life may be saved. Some patients survive several attacks, but sooner or later a fatal uremia will occur, unless the patient dies of heart failure, apoplexy or some other disease or complication of diseases. The prognosis of uremia occurring in chronic nephritis, if the attack is severe, is less favorable than that of uremia occurring in acute nephritis. The treatment is that described under uremia. The value of decapsulation and the indication for it in chronic nephritis will be described under that heading.

Although the urine of a chronic nephritis patient should occasionally be analyzed, it should not be analyzed so frequently as to cause continuous mental worry. There is no reason why the chronic nephritis patient, like the patient with chronic heart weakness, should not live for years, if properly watched; but, as in heart disease, it is necessary to divert the patient's attention from himself, while we are giving him a more or less frequent supervision (depending on his condition).

(To be continued)

107. Cardiovascular-Renal Disease, Therapeutics, THE JOURNAL A. M. A., Sept. 23, 1916, p. 951.

108. Christian, Henry A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.

Special Article

THE MEDICAL OFFICER OF THE ARMY
II
SANITARY SERVICE IN THE FIELD

The sanitary service of the army in the field is divided into two sections: one for the zone of the advance, which comprises all of that territory covered by the army in actual operation, the other for service in the zone of the line of communications, which covers all that territory between the base and the zone of the advance. This zone of the line of communications is concerned particularly with the service of the supply and the care and evacuation of the sick and wounded. In the zone of the advance the mobile sanitary units are located. With each division there are four ambulance companies and four field hospital companies. These units are intended for service on the actual field of battle. Their work is thoroughly organized and proceeds under plans worked out beforehand. The general principles of this work with the army in the field were first originated and developed by Surgeon Jonathan Letterman, who was the medical director for General McClellan's army during the Civil War. His plans, after having been adopted by General McClellan, finally received the approval of Congress and were adopted for all of the federal armies then operating. Though the foreign nations followed closely our lead in this subject, our own country after the Civil War did not take to heart the lessons it had learned; therefore, when the Spanish-American War began, there was no such organizations as mobile sanitary units in our army. A more or less inadequate plan was then adopted by providing regimental hospitals with each regiment. Experience showed this scheme to be useless, and the present plans now in effect were adopted. Since the Russo-Japanese War these have been more completely developed, and at the present time are similar to the regulations in force in the large European armies.

There is great necessity for thoroughly trained officers and men in this service; every effort, therefore, has been made by the medical department to train these men in time of peace. Unfortunately, the secretary of war has never allowed a sufficient number of units for even our small regular army, so that in time of actual war we shall have to organize this service carefully for any large army called out by the president.

AMBULANCE COMPANIES

There are four ambulance companies to each division under the control of an officer designated as the director of ambulance companies. The personnel of each ambulance company consists of five medical officers and seventy-nine enlisted men: twelve ambulances and three wagons are provided for transportation of supplies.

REGIMENTAL AID

When the regiment goes into action, the immediate first aid is done so far as possible by the sanitary detachments belonging to each regiment. They, of course, have to accompany the regiment when it makes a further advance, and the work of applying first aid and evacuating the wounded is taken up by the ambulance company.

DRESSING STATIONS

On being notified by the division surgeon who is in command of the sanitary units of the division that a dressing station should be established in a certain sector of the field, the director of ambulance companies sends a company to take up that work. It should be understood that the ambulance companies of the division are not allotted to certain parts of that division; but when the casualties are occurring in sufficient degree to require the services of an ambulance company, one is immediately sent, a reserve of one or more companies being kept as long as possible in a position of readiness to go forward in case of any emergency. This method always provides for the more flexible handling of the service. When the ambulance company arrives at the point at which a dressing station is to be established, one section immediately takes steps to establish this station, and the bearer sections of the company go forward to the field of battle to begin the transportation of the wounded back to the station. This transportation is by litter, or if there is a lull in the engagement or the battle is over, ambulances are brought directly to the field. As rapidly as possible the wounded are removed to the dressing stations, and thence as soon as the field has been entirely cleared they are taken to the field hospitals located farther to the rear. Much of this work may have to be done at night. It is impossible to remove the wounded under fire, as there is the great probability of losing more sanitary troops than wounded men. This dressing station is not permanent in character; it is a collecting point for the wounded selected on account of the protection provided from rifle fire. Here the wounded receive first aid, and only such emergency operations as the ligation of arteries, etc., are attempted. There is no tentage and no elaborate equipment.

FIELD HOSPITALS

The next step is taken up by the field hospitals. There are four such units to a division under the control of a director of field hospitals, and each field hospital company has a personnel of six medical officers and sixty-seven enlisted men; their material is carried in seven wagons. As soon as notified that a field hospital should be established, one company is sent forward and immediately opens the hospital at the point selected. If possible, buildings are used in some town or village; but if this is impracticable, tents are erected, each field hospital having by this means accommodations for 216 patients. As soon as established, the wounded are rapidly transported from the dressing stations to these field hospitals by the ambulances of the ambulance company. When the injured arrive at the field hospital they receive a little more attention than could be given them on the field itself. In this regard it must be understood that the name "field hospital" is somewhat a misnomer. No real hospital treatment is attempted, and this station is only a point at which the wounded men receive temporary treatment. All wounds needing extensive dressings or redressings are attended to at once, emergency operations performed, and the wounded men are made comfortable on bed sacks filled with straw. Liquid food is also provided not only for nourishment but also for its stimulating properties. With an army moving rapidly in campaign, no extensive operations can be indulged in at the field hospital. The greatest good for the greatest number must be always uppermost in the minds of all officers attached

to such a unit. This principle of not performing extensive operations on the field is somewhat at variance with the practices of some of the armies of the European nations during the present war, but the warfare on the western front has been trench warfare, or siege warfare, as it is technically called, and the field hospitals have been more or less permanently established for over two years past. This permits them to provide for the care and treatment of serious as well as of slight cases directly behind the firing line.

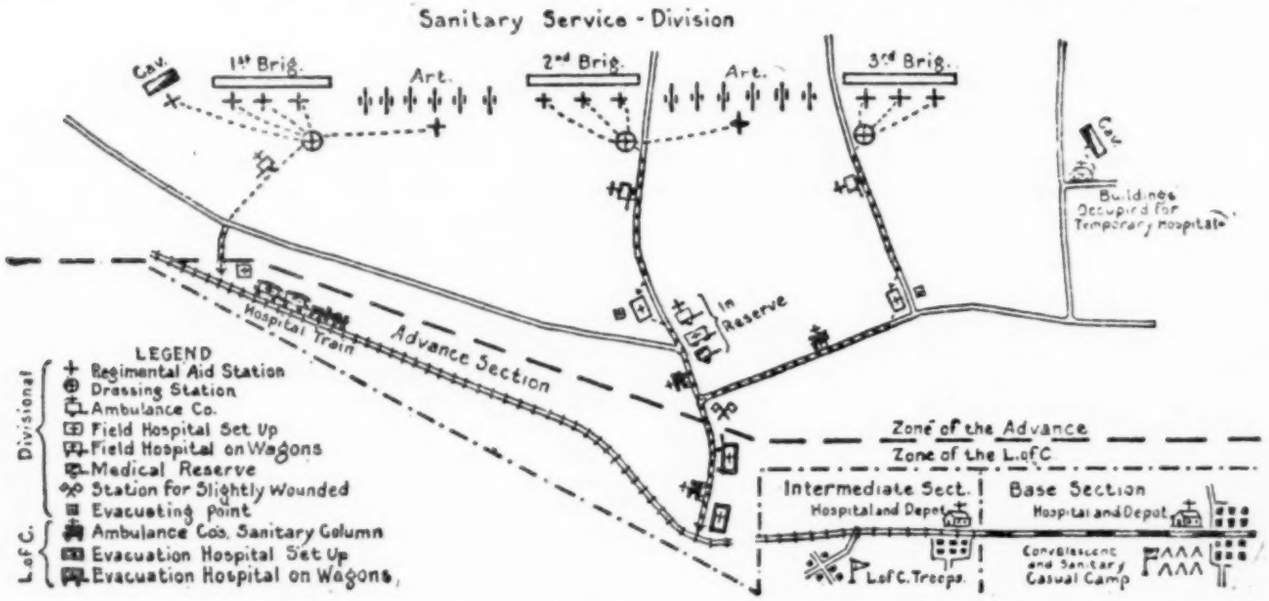
EVACUATION SERVICE

As soon as the field hospitals begin to receive their wounded, plans must be perfected for their further evacuation to hospitals in the rear. This evacuation service is organized as thoroughly as possible, and at this point Red Cross columns can be profitably used. The magnitude of the problem of the care and evacuation of the wounded on the battlefield is one that can hardly be exaggerated. It is absolutely necessary to remove the wounded as rapidly as possible, not only for the purpose of clearing the division of the impediment caused by the large numbers of the disabled, but also to prevent the sight of seriously wounded men affecting the morale of the troops. After an engagement, the army is possibly advancing farther with prospects of future fighting; therefore, its ambulance companies and field hospitals have to evacuate their wounded rapidly so that they, too, may move forward if necessary and be of service in any future engagement.

The motorization of the mobile sanitary units has received careful attention in our service since the development of that method of transportation during the present European war. The service is being rapidly equipped with well designed ambulances, and men are being trained to handle them. It is not the intention of the medical department to use motor ambulances to the exclusion of the mule ambulance, as it is realized that the roads in this country will at times not permit of the movement of motor vehicles, so that not all of the four ambulance companies with the division are to be supplied with these vehicles, one or two of these companies remaining equipped with the mule-drawn vehicles.

LINE OF COMMUNICATIONS

The line of communications is under the command of the commander of the line of communications, who is under the commander of the armies in the field. The technical adviser representing the medical department on the staff of the commander of the line of communications is called the surgeon of the base group, and this officer is located at the base. All of the medical service of the line of communications is in his hands, but a line of communications is anywhere from 50 to 300 miles in length, and naturally an officer stationed at the base is rather out of touch with what occurs at the other end of this line. Therefore, another position has been created, and an officer is detailed as surgeon of the advance group of the line of communications. This officer is in charge of the care and evacuation of the wounded from the time they leave the field hospital up to the time they are placed on the hospital train for further evacuation to the base. From the medical standpoint, the head of the line of communications is a very important point. It acts as a safety valve in the evacuation of the sick and wounded. The division is bending every effort to free itself of the impediment of the sick and wounded after an engagement of any moment, and the railroads which are the principal arteries of the line of communication are congested with trains bringing ammunition and other supplies to the front. This then prevents the commencement of the evacuation of the wounded from the head of the line of communications to the base. Considering the question from this standpoint, it can be seen that the hospitals and other units located at this end of the line of communication must be rapidly expansible. The unit particularly concerned in this work is the evacuation hospital. There are two such hospitals allotted to each division. Each hospital has a personnel of fourteen officers and 153 enlisted men. The entire capacity is 432 beds, but there are sufficient supplies on hand to provide for an expansion to a much greater extent. An evacuation hospital is preferably located in buildings selected for the purpose in a town or city which is the head of the line of communications. Tentage is provided, but should not be used except in cases of emergency. Of course, it would be preferable to move the evacua-



tion hospital up to the point at which field hospitals are located so that they can relieve these field hospitals at this point and eliminate the transportation of the wounded from the field hospital to the evacuation hospital. This unfortunately will be found to be impossible in most cases, and the plans for the evacuation from the field hospital to the evacuation hospital must then be perfected. An evacuation hospital is the first place where real hospital care can be provided for the wounded men and where they can receive every medical attention. The equipment furnished is sufficiently elaborate to give complete hospital care to every wounded man retained at this point.

EVACUATION HOSPITAL

The wounded received at an evacuation hospital can be divided into three categories: 1. Those men who are so seriously wounded that they cannot stand further transportation; these will have to remain at the hospital indefinitely. 2. Seriously wounded men who can stand such transportation; this class is to be evacuated to the base at the earliest practicable moment. 3. Slightly wounded men who will recover within a week or ten days. It is naturally improper to send these men farther to the rear, for they will shortly be able to rejoin their regiments; but it is also wrong to allow the beds of an evacuation hospital to be filled by men who do not need hospital attention. Therefore, they are not accommodated in the evacuation hospital itself but in a convalescent camp under control of the medical department. There they receive food and shelter and such medical attention as they require until they have thoroughly recovered, and they are then turned over to the line officers to be sent forward to the zone of the advance. The evacuation from the head of the line of communication to the base is accomplished by means of hospital trains. These trains will be practically rolling hospitals, and every care and attention will be given the sick and wounded on their journey. Unfortunately, we have only one such train in our service, and it is probable that even if other hospital trains are equipped, a good deal of the transportation directly after an engagement when the wounded are to be evacuated in large numbers will be carried on in improvised hospital trains. These will be trains of Pullman or passenger coaches arranged for the purpose, or even box cars with sufficient straw spread on the floor to give a certain amount of comfort to the wounded men. When these wounded arrive at the base they are then removed from the trains to the base hospitals.

BASE HOSPITAL

Base hospitals are established in buildings either adapted from buildings formerly used for other purposes or in especially constructed temporary structures. Each base hospital has a capacity of 500 beds and a personnel of twenty officers, 153 enlisted men and forty-six female nurses. There are sufficient supplies on hand with each base hospital to provide for an expansion to at least double this number. The base hospital as equipped gives complete hospital attention to all sick and wounded received. The officer in command of a base hospital should be thoroughly familiar with his duties and see not only that the patients receive careful attention but also that wounded men who are expected to recover shortly are not permitted to go farther to the rear. Further evacuation should include only the totally disabled or those who are probably disabled for some time to come. This principle of procedure must be thoroughly understood, for we are constantly endeavoring during active campaign to keep as many men with the colors as possible, and naturally if wounded men go farther to the rear than the base hospitals, a great deal more difficulty will be experienced in providing for their return to the firing line. A convalescent camp is also established at the base and all men who have recovered suffciently so as not to require hospital attention are placed in the camp until they are able to do full duty, when they are returned to their regiments.

MEDICAL SUPPLY DEPARTMENT

Another important service with the army in the field is conducted by the medical supply department whose principal station is established at the base. There supplies are received from the rear for distribution to the division units and also the hospitals located along the line of communications. A branch of this depot is established at the head of the line of communications to facilitate the resupply of the mobile units. The field hospital has on hand a reserve supply of all the material needed by ambulance companies and regimental detachments, and can resupply these units.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ACETYLSALICYLIC ACID (See N. N. R., 1917, p. 265).

Acetylsalicylic Acid, Squibb.—A nonproprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by E. R. Squibb and Sons, New York City.

Aspirin, L. & F.—A nonproprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Lehn and Fink, New York City.

Malaria in Peru.—Under a law passed, Dec. 22, 1916, the Peruvian government has begun an active campaign against malaria (*Commerce Reports*, Feb. 26, 1917), which will include the treatment of patients, the protection of people living in places in which malaria is endemic, the destruction of mosquitoes and the drainage or special treatment of swamp lands. The government will import quinin, free of customs and port charges, and individuals and institutions may purchase the drug at cost. All proprietors of estates, all railways, corporations and other organizations employing labor will be required to furnish medical service to their employees, either directly or through proportionate contributions to charitable dispensaries, and inspectors will be appointed to see that the work is carried out. Unemployed persons will receive free quinin. Houses in swampy districts will be provided with mosquito netting, and rice or other crops requiring flooding will not be cultivated within a certain distance of habitations. Drainage will be begun by the government, and all private owners will be given from one to four years to complete the sanitation of their lands. Where drainage is impracticable, swamps will be treated with crude petroleum. Prizes will be offered by the government to those who show most zeal in putting their lands in good condition. A course of study in the prevention of malaria is to be given in all public and private schools. The instruction will be in charge of the department of public health, and the expense will be met by annual appropriations in the budget.

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SATURDAY, APRIL 28, 1917

THE FOOD SUPPLY

If the American people fail to appreciate the supreme importance of the food supply in relation to the present world war and the inevitable consequences which are liable to confront our own nation, now at war, if the food problem is treated with characteristic American indifference, it will scarcely be the fault of printers' ink or inadequate publicity. The lessons of the distressing European situation in respect to the shortage of food among both belligerents and neutrals will have been taught in vain if this country remains blind to the dangers of either ignorance or unconcern in this matter. A proposed war loan of seven billions of dollars has awakened the public to an attempt to realize what this sum really means and how it may affect our people. A figure so stupendous is not easily grasped by the average person. The foremost experts of the country have given time and earnest thought to the questions involved in the collection and expenditure of this contribution to the war. Yet, as recently remarked by an expert in nutrition, the food problem involves a national expenditure of at least six thousand million — six billion — dollars per year. The food problem is a national problem which affects the living expenses of the very poor more directly than does any other problem.

Despite these eminently impressive facts, the person who ventures to revert to the pressing questions of food and nutrition is still looked on all too frequently as either a "highbrow" or a crank. The day has passed when the people of any community of noteworthy size are allowed to suffer the consequences of an inadequate or impure water supply or are obliged to submit to the inconveniences of mismanaged public service institutions. Nevertheless the food supply on which every inhabitant is absolutely dependent is almost entirely removed from any regulatory influences, other than a few sanitary regulations here and there.

Has not the time arrived for some progressive step, particularly in view of the prominence which the war situation has given to the problems of food supply? Action does not necessarily mean restrictive legislation or obnoxious police regulations or direct interference with that freedom of choice which the American citizen is sometimes urged to love too well to abuse it. Progress may often be initiated by education; it is even enforced by competition. In an illuminating address on food values delivered a few days ago in New York before the Home Economics Association and the Society of Chemical Industry, Lusk[1] referred to the experiences which Germany encountered as the result of her attitude early during the war toward the advice of the students of nutrition. It was unfortunate, he says, that the carrying out of the recommendations of the Eltzbacher Commission was left to politicians, farmers and middlemen. The scientists of the country were not represented, and the result was chaos. It may appear a contradiction of terms, Lusk adds, to hear in the same breath that there is a shortage of food in Germany and yet that the people are not starving. This is due to the fact that in extreme cases of undernutrition it is possible to reduce the requirement of food to only 40 per cent. of its former level. The undernourished and emaciated may, therefore, live on much less food than those who are well fed and are up to normal weight.

In England a scientific commission composed of men whose names should bear weight has already concerned itself with British food conditions so that the restrictions of the food controller may be put on some rational basis of nutritive safety. It is recognized everywhere among those trained in the domain of nutrition that a hard-working man requires more food than one who is not so strenuously engaged. Accordingly the British troops in the field are reported to receive from 4,300 to 4,600 calories because they are subjected to severe muscular tasks and are much exposed to cold. Yet, according to Lusk, "Dr. Murlin has calculated that the 'garrison ration' of the United States Army contains 4,400 calories, while the 'field ration' contains only 3,800."

What scientific advice is at present worth giving and how to give it is a question for experts to decide. The past three years have exemplified the validity of this thesis. The question of food supply is one not merely of human nutrition. Available food energy must be distributed between man and beast in the most productive and economical way. Problems of quality as well as quantity are concerned, as was recently pointed out in relation to the need of fats.[2] Lusk has seriously suggested that this is the proper time for an American commission to consider these subjects and report to our government what elemental advice the commission might agree to give. The personnel of an appropriate committee has even been proposed, namely, Mendel, Taylor, McCollum, Folin, Levene, Sherman, Armsby, Langworthy and Benedict. Dr. Lusk's modesty, of course, prevented the suggestion of his own

1. Lusk, Graham: Food Values, Science, April 13, 1917, p. 345.
2. The Need and Availability of Fats, editorial, The Journal A. M. A., April 14, 1917, p. 1124.

name, but it is obvious that he is one man who certainly should be on the committee. A consensus of opinion arrived at by such a representative group would mean, as Lusk says, the submergence of the individual for the instant, in an attempt at welfare work for the nation at large. It would be an experiment worth trying. In this conclusion we heartily concur.

ICE CREAM AND BACTERIA

The use of artificially frozen food materials, such as ice cream, as articles of diet is comparatively recent. In the United States the value of the annual output of ice cream exceeds $100,000,000, and is apparently steadily increasing. The popularity of ice cream is partly due to the fact that it is one of the few foods "which can be procured ready-made, requires no preparation, no labor, no time, no fuel cost, and can be served freely and often." In addition to other places where it is sold, many of the nearly 50,000 drug stores in this country dispense it.

Strictly speaking, ice cream is a frozen product made from cream and sugar with or without a natural flavoring, and should contain about 14 per cent. of milk fat. There is as yet no general agreement as to whether or not and to what extent such ingredients as starch, flour, eggs, gelatin and gums should be permitted. The hygienic quality of ice cream obviously depends on the sanitary character of its ingredients, particularly on that of the cream. Many persons believe that the freezing temperature suffices to destroy many of the bacteria present, thus making ice cream sanitary. This is, however, far from the truth. Several years ago Dr. Pennington and her collaborators[1] showed that during the maintenance at 0 C. (32 F.) the organisms of raw untreated and reinfected sterile milk and cream undergo an increase, which is most striking in the raw untreated milk. Some organisms disappear during this period; others become acclimated to the lower temperatures of incubation. Ice cream, however, attains a lower temperature; yet studies at the Storrs (Conn.) Agricultural Experiment Station[2] have shown that when ice cream is kept frozen for at least a month there is no marked increase or decrease in the bacterial content. This indicates that ice cream with a high bacterial content at the start may be expected to show large numbers of bacteria throughout the period of storage, while ice cream with a low bacterial count will continue to show only a few micro-organisms.

The important feature to be emphasized, therefore, is the fact that the condition of the ingredients of the ice cream, rather than the period of its storage, determines its quality from a bacteriologic standpoint. In one of the most elaborate reports ever made on the subject, Wiley[3] pointed out, in 1908, that the bacteriologic examination of cream and ice cream in the District of Columbia showed that much of it contained bacteria far in excess of the number which should be found in pure, uncontaminated fresh products. In 263 samples of ice cream collected in the city of Washington in 1906-1907, the average number of organisms per cubic centimeter was over 26 millions, with a maximum count of 365 millions and a minimum of 137 thousand. This enormous bacterial flora was ascribed to two causes, namely, insanitary conditions of the dairy and factory, and long preservation of the product.

With the progress of popular education in hygiene of the milk and dairy industry, advances are continually made. These advances have, however, seemingly as yet little affected the sanitary condition of ice cream ordinarily sold at retail stores. Available statistics for Philadelphia, Boston, Washington, Chicago, and Des Moines and Ames, Iowa, indicate that on an average from 15 to 26 millions of bacteria per cubic centimeter are found in the ice cream sold in these cities. Later data obtained from products purchased at retail in three localities in Connecticut give little, if any, evidence of better conditions in that state, the figures ranging from 1 to 42 millions, with an average of 15 millions.[2] Is it unfair to say that better standards should be maintained in this industry, which has heretofore often escaped suspicion because of a mistaken prevalent belief in the bactericidal effect of cold?

1. Pennington, M. E.; Hepburn, J. S.; St. John, E. O.; Witmer, E.; Stafford, M. O., and Burrell, J. I.: Bacterial and Enzymic Changes in Milk and Cream at 0° C., Jour. Biol. Chem., 1913-1914, **16**, 331.
2. Esten, W. M., and Mason, C. J.: The Bacteria in Ice Cream, Bull. 83, Storrs Agricultural Experiment Station, p. 128, 1915.
3. Wiley, H. W.: Ice Cream, in Milk and Its Relation to the Public Health, Bull. Hyg. Lab., U. S. P. H. S., 1908, **41**, 245.

COLOSTRAL MILK

Colostrum, the product secreted by the mammary gland for a short period after the birth of young in the lactating individual, varies in its composition. Judged by the fact that naturally fed infants and calves each receive the colostrum of their own species, the value of this product to the young of the same species might be adjudged to be considerable. But the colostrum of the cow is not a marketable product, and we are not aware of any record of its having been supplied to infants as food. Opinions as to the length of time after parturition during which cow's milk is unfit for human consumption differ. The methods and standards for certified milk adopted by the American Association of Medical Milk Commissions[1] place the figure at seven days after parturition.

The basis for the exclusion of cow's milk immediately after the birth of the calf is that its composition or constituents give rise to intestinal disorders. Eckles and Palmer[2] of the Missouri Agricultural Experiment Station, who have devoted much study to the milk question, state that the evidence on which this conclusion is based is extremely difficult to find. The literature on colostrum milk is extensive, but it is astonishingly free from specific data regarding the

1. Proc. Sixth Ann. Conference, Am. Assn. Med. Milk Commissions, 1912, p. 124.
2. Eckles, C. H., and Palmer, L. S.: The Influence of Parturition on the Composition and Properties of the Milk and Milk Fat of the Cow, Jour. Biol. Chem., 1916, **27**, 313.

healthfulness or unhealthfulness of cow's milk immediately after parturition.[3]

The chief chemical differences between colostrum and later milk appear to consist in the increased content of nitrogenous substances and certain constituents of the ash. Fat and sugar are little, if at all, higher than in later milk. There are at least two reasons for medical interest in the period of persistence of colostral characteristics in milk. One pertains to the duration of restriction against the sale of cow's milk post partum; the other relates to the composition of colostrum considered from the standpoint of possible advantages to the young. It has been assumed by some that colostral milk offers a peculiar advantage, through its relative richness in nutrients, in helping to prevent the decline in weight so apt to ensue for a short time immediately after birth unless some supplementary feeding is contributed. If colostrum represents a peculiarly beneficent form of mammary secretion, we need to know its characteristics and the conditions which determine its persistence or disappearance. The difficulty of obtaining human colostrum enforces the necessity of making the physiologic observations in regard to it on some other species.

Milking the cow up to the time of parturition is not a common practice among dairymen. They believe that the dairy cow will produce more milk during the lactation period if given a rest of several weeks before parturition. Continuous milking of the cow is, however, a common practice in many localities. The effect of this practice on the composition of the colostrum is thus a matter of considerable interest, practical as well as scientific. In observations on a Jersey herd, Eckles and Palmer have found that parturition in the case of the cow is normally accompanied by the production of the milk of extremely abnormal composition, called colostrum. When cows are milked up to parturition, however, the colostrum milk and milk fat are much less abnormal in composition and follow closely the composition of the milk and milk fat given before parturition. The chief characteristic of the milk as the cow approaches parturition in these cases is the marked increase in the content of heat-coagulable proteins, which reach their maximum in the first milk following parturition, that is, the true colostrum milk. This would indicate that a high content of heat-coagulable proteins is the chief, if not the only, real effect of parturition on the milk. The length of time the cow is dry before parturition is a factor influencing the composition of colostrum milk, but does not influence the composition of colostrum milk fat. The shorter the time the cow is dry the less abnormal will be the composition of the colostrum milk. These facts have a bearing on human lactation no less than on the food value of milk.

3. The literature on colostrum is reviewed very thoroughly by E. Weber (Untersuchungen über die Kolostralmilch der Kuh, der Ziege und des Schafes, Milchwirt. Zentralbl., 1910, **6**, pt. x, 433; xi, 481; xii, 543) and also by S. Engel (Die Biochemie des Kolostrums, Ergebn. Physiol., 1911, **11**, 41).

THE PREVALENCE OF SICKNESS

In his report on the conservation of national vitality,[1] Fisher states that there are always 3,000,000 sick persons in the United States, of whom 1,000,000 are in the working period of life, and that about three quarters are actually workers earning an average of $700 a year, the loss through sickness being over $500,000,000. To this is added another $500,000,000 as the expense of medicines, medical attendance, special foods, etc., bringing the total cost of illness, as estimated by Fisher, up to about $1,000,000,000 a year. One half of this loss is preventable. The preventable loss from death is estimated at $1,000,000,000, which, added to the estimated preventable loss from illness, $500,000,000, gives one and a half billions as the preventable loss from disease and death in this country. These figures are estimates — conjectures — and yet they probably are not far from the actual facts. A recent survey of the sickness in North Carolina[2] indicates that they are not exaggerated. North Carolina was chosen because it included rural as well as urban communities, and gave an opportunity to compare sickness in the white race with that in the negro. Fourteen thousand, one hundred and twelve families were canvassed, containing 66,007 persons, 43,468 white and 22,539 colored, comprising about 2.5 per cent. of the total population of the state. There were 1,881 cases of illness found, or 28.5 per thousand, indicating that about 3 per cent. of the population are constantly sick, and that in 80.4 per cent. of those sick the illness is serious enough to render them unable to work. This is slightly higher than the morbidity rate found in Rochester, N. Y. It is also higher than that reported by Billings in the Eleventh Census Report for a group of twelve northeastern and southern states; but, considering the different geographic areas covered and the changes that have occurred since 1890, the two estimates correspond closely.

Of nearly 2,000 sick persons, 80 per cent. were unable to work; 28.5 per cent. of these were confined to bed, and 51.8 per cent. were up and about. These figures confirm the Rochester report, which showed 27.6 per cent. confined to bed and 55.2 per cent. up and about. Only 2.4 per cent. were in hospitals. This contrasts strikingly with 10.7 per cent. in Rochester and 14.4 per cent. in Trenton, and indicates limited hospital facilities in a state for the most part rural in character. There is a regular increase in the rate of sickness with age, as well as an increased amount of illness among females. The average number of days of disability per annum per capita of population was found to be 7.6 days for white males and 10.2 for white females, 7.4 for colored males and 11.3 for colored females. These results agree with the best data available as to the number of days of disability per person

1. Fisher, Irving: Report on National Vitality, Its Wastes and Conservation, Bull. Committee of One Hundred on National Health, 1909, No. 30.

2. Frankel, L. K., and Dublin, L. I.: A Sickness Survey of North Carolina, Pub. Health Rep., 1916, **31**, 2820.

of working age. The German figures for 1913 give 8.8 days for males and 9.8 days for females insured in the sickness societies of that country.[3]

If from 2.5 to 3 per cent. of the working population are constantly sick, this is equivalent to a loss of about nine working days per person per year of 300 working days for the entire population. This rate applied to the whole country gives figures that are staggering. No monetary estimates of disability are needed to emphasize this enormous loss of working time in the productive years of life. Whatever the financial estimate based on wage loss, we have still to consider the cost of medical attendance, nursing care and drugs, and the far-reaching effects of sickness in impairing the living and working efficiency of the families affected by the disability of one or more members. If public health is purchasable, as Biggs has so emphatically proclaimed in his campaign for conservation in New York State, the possibilities of success from suitable investments, indicated by the now known facts regarding sickness, appear to be nothing short of enormous.

Current Comment

THE IMMEDIATE NEED OF YOUNG MEN FOR THE REGULAR MEDICAL CORPS

The Medical Corps of the Army is in immediate need of and is appealing urgently for young ambitious physicians to fill positions that have long been regarded as desirable but which have heretofore been difficult to obtain, namely, membership in the Medical Corps of the Army. The position is one of honor, it is permanent, and commands a good remuneration. It offers opportunity for those who are ambitious to make famous names for themselves. Not a little of the progress made in medicine has been the result of work by medical men of the army. There is opportunity for laboratory research and for scientific clinical investigation. The act of June 3, 1916, provided for increasing the standing army to 293,000 men, an increase of 161,000 men. This calls for a proportionate increase in the number of medical officers. After the full quota of the army is reached, 2,051 medical officers will be required. Including those in the Army Medican School and those who have offered their services and who have been accepted subject to examination, 685 medical officers are available. This leaves 1,366 additional medical officers necessary to be appointed by the time the new regular army is fully manned. How soon this will be is not known. It is dependent on how soon Congress will make the necessary appropriation and also on whether Congress will depend on the volunteer system or will adopt selective conscription to obtain the men. But no matter whether two months or six months elapse before the quota of 293,000 men is secured, there must be 2,051 medical officers ready to serve. The Surgeon General of the army is appealing for these men now. He wants them now so that they may receive the necessary training and be ready just as soon as the new regular army is ready. THE JOURNAL adds its appeal to that of the Surgeon General. Young physicians who are qualified and who consider entering into military medical work should act at once. An application blank appeared in THE JOURNAL last week. Fill it out and forward it immediately to the Surgeon General of the Army. Graduates of good medical schools under 32 years of age who are physically and mentally qualified will be thus rendering a service to their country, to medical science and to themselves.

3. Kaiserliches Statistisches Amt, Die Krankenversicherung im Jahre 1913, Statistik des Deutschen Reichs, Berlin, 1915, **277**, 60.

THE NEW YORK SESSION NUMBER

The preparations for the annual session of the Association, to be held in New York City, June 4-8, are being rapidly completed. The next issue of THE JOURNAL, May 5, will be the New York number and will convey the official call for the 1917 annual session to the officers, members and Fellows. It will announce also the preliminary program of the Scientific Assembly, together with information concerning railroad rates, hotel accommodations and the scientific and social events provided by the local profession, as well as other matters which will interest those who are planning to attend this session.

MATERNAL MORTALITY IN THE UNITED STATES

It is now nearly seventy-five years since Oliver Wendell Holmes in this country and Semmelweis in Europe announced the infectious character and preventability of puerperal septicemia. Yet as nearly as can be determined from our imperfect records, about 15,000 women die annually from conditions related to childbirth. Of these, about 7,000 die from septicemia, known for three quarters of a century to be almost entirely preventable. In 1913, childbirth caused more deaths among women from 15 to 44 years of age than any other one disease except tuberculosis. Of fifteen foreign countries only two show a higher death rate from this cause than does the Registration Area of the United States. According to Meigs,[1] there were, in 1913, in the Death Registration Area of the United States, 10,010 deaths due to conditions caused by pregnancy and childbirth. Of these, 4,542 were due to puerperal septicemia. It is estimated, then, that in 1913, the total number of deaths in the United States due to childbirth was 15,376, of which 6,977 were due to childbed fever, a death rate of 15.8 per hundred thousand including all ages and both sexes, or 50.3 per hundred thousand women between 15 and 44. Owing to defective registration, no accurate comparison between urban and rural populations is possible. A definite and striking difference exists, however, between the white and colored populations. In 1913, the death rate from all diseases of pregnancy and con-

1. Meigs, Grace L.: Maternal Mortality from All Conditions Connected with Childbirth in the United States and Certain Other Countries, Miscellaneous Series 6, Bureau Publication 19, Federal Children's Bureau, Department of Labor, Washington, D. C.

finement per hundred thousand white population was 15.2, and the rate from puerperal septicemia was 6.9, while the rate per hundred thousand colored population for all diseases of pregnancy was 25.1 and for puerperal septicemia 11.5. Comparing the United States with foreign countries, it is found that out of the sixteen leading countries, the United States stands fourteenth, our death rate in this field being surpassed only by Switzerland and Spain, while Sweden, with a total death rate of 6 per hundred thousand, Norway with 8.1 and Italy with 8.9 per hundred thousand stand at the head of the list. Two causes are suggested: ignorance on the part of the public of the dangers connected with childbirth and of the need of skilled care and proper hygiene to prevent them, and the difficulty of securing proper obstetric care. In spite of the fact that the preventability of puerperal septicemia was recognized long before that of any other infectious disease except smallpox, the public still regards childbirth as an entirely normal process and a certain number of deaths as unavoidable. This has reacted on the medical profession, producing low fees, so that, with the exception of the city specialist, obstetrics has become one of the worst paid, although one of the most difficult and exacting branches of medicine. When to these factors are added the additional problems of the ignorant midwife, the lack of hospital facilities and the difficulty of proper care in the home, especially in small towns and rural communities, it is not strange that the death rate from this cause not only should be disgracefully high, but also should have shown little reduction in the past decade.

PLATINUM, PATRIOTISM AND LABORATORY PRACTICE

Platinum is required in the production of sulphuric acid, which is itself a necessity in the production of high explosives. Platinum is also extensively used in the timing apparatus for torpedoes and timed shells. During the past few years the price of platinum has advanced so rapidly that it is today approximately five times as valuable as gold. This advance has been due to the increased uses for this metal. It is used in lighting apparatus, it is used in laboratories, in the form of the well-known "platinum loop" for bacteriologic cultures, it is used extensively in dentistry, in photography and by some freak of fashion it is used in modern jewelry. From a purely esthetic point of view, its use in jewelry has but slight justification as it is not so beautiful as many other substances, and except for its intrinsic value, it seems to have but slight merit as an adornment. In the same way, its use in the laboratory, in dentistry and in photography may be overcome by the substitution of other less valuable metals. The great need of the metal in the processes mentioned which bear such a direct relationship to the war, and in which no other metal can be substituted for platinum, should cause the patriotic physician and the dentist to dispense with it wholly as an adornment and in the laboratory whenever possible.

THE COMPOSITION OF HUMAN MILK IN THE EARLY DAYS OF LACTATION

Precisely when and how rapidly the change from colostrum, secreted by the mammary gland just after parturition, to the subsequent true milk occurs is not clear in the case of the human species. Colostrum is characterized by a comparative richness in proteins, whereas the sugar and salt content does not differ so widely from that of the milk secreted later. A variety of properties, such as a laxative effect, have been attributed to colostrum; but information regarding the chemical make-up of mother's milk in the earlier stage of lactation is far from complete. There are numerous factors, such as constitution, age, diet and disease, in addition to the stage of lactation, which may play some part in affecting its composition. Statistics from human sources under carefully controlled conditions are not readily obtainable. Special value attaches, therefore, to a new series of analyses by Hammett.[1] Milk was collected from healthy women by means of the breast pump at the same hour on the third, fifth, seventh, ninth and eleventh days after parturition. Quantitatively, fat and lactose were found to be increased in amount during the period studied, while there was a falling off in the production of protein. If we accept as an index of variability the individual variation from the group average, and the individual variation from day to day, the three constituents fall into the following order of decreasing variability: fat, protein, lactose. The protein-producing mechanism is apparently the best regulated, and is less dependent on the factors controlling the fat and lactose production than they are on each other. For the single constituents there is a production plane uniform for the individual subject. This plane of production is fixed for the individual, independent of the plane of nutrition and dependent on the individuality. An increase or decrease in the lactose production is generally accompanied by a change in the opposite direction in the percentage of fat and protein.

MEDICAL AND PREMEDICAL STUDENTS

If there is any single group of young men who are patriotic and who want to show it, it is the young men in our universities and medical schools. However, may we suggest to these young men that they can show their patriotism and do more for their country by completing their education than by volunteering as soldiers in the ranks. The General Medical Board of the Council of National Defense has taken action on this matter and is appealing[2] to medical and premedical students to continue in their original idea of educating themselves for the medical profession. It will take moral courage in some instances, especially if classmates are volunteering, but this kind of courage is just as commendable as that required to shoulder a musket and enter the trenches.

1. Hammett, F. S.: Variations in the Composition of Human Milk During the First Eleven Days after Parturition, Jour. Biol. Chem., 1917, **29**, 381.

2. See Medical Mobilization and the War, this issue, p. 1267.

Medical Mobilization and the War

APPLICATION FOR THE MEDICAL OFFICERS RESERVE CORPS

Last week we published two application blanks, one for the Medical Corps and the other for the Medical Officers Reserve Corps. At that time we stated that when filled out the blanks should be sent to the surgeon-general's office. This applies only to applications for the regular Medical Corps. The surgeon-general's office has appointed medical boards in various parts of the country, composed of officers of the Medical Reserve Corps, to pass on applicants for the Medical Officers Reserve Corps. This will relieve the pressure on the surgeon-general's office, and make it more convenient for those who offer their services. We give below the chairmen of the various boards. Applicants for the Medical Officers Reserve Corps should send their applications to the chairman of the nearest board.

ALBANY, N. Y.—1st Lieut. Henry L. K. Shaw, M. R. C., 361 State St., Pres.
ST. LOUIS—1st Lieut. William H. Luedde, M. R. C., 311 Metropolitan Bldg., Pres.
NEW YORK—1st Lieut. Henry C. Coe, M. R. C., 40 East 41st St., Pres.
CHICAGO—1st Lieut. John A. Hornsby, M. R. C., 6 N. Michigan Ave., Pres.
DENVER—1st Lieut. Cuthbert Powell, M. R. C., Metropolitan Bldg., Pres.
MINNEAPOLIS—1st Lieut. James F. Corbett, M. R. C., 4401 East Lake Harriett Blvd., Pres.
ANN ARBOR, MICH.—1st Lieut. Reuben Peterson, M. R. C., 1416 Hill St.
CINCINNATI—1st Lieut. Robert D. Maddox, M.R.C., 4 W. 7th St., Pres.
PITTSBURGH—1st Lieut. John W. Boyce, M. R. C., Empire Bldg., Pres.
RICHMOND, VA.—1st Lieut. Stuart McGuire, M. R. C., 513 E. Grace St., Pres.
BOSTON—1st Lieut. Horace D. Arnold, M. R. C., Harvard University Graduate School of Medicine, Pres.
NEW ORLEANS—1st Lieut. Isadore Dyer, M. R. C., 124 Baronne St., Pres.
PHILADELPHIA—1st Lieut. Elijah H. Siter, M. R. C., 1818 S. Rittenhouse Sq., Pres.
CLEVELAND—1st Lieut. George W. Crile, M. R. C., 1021 Prospect Ave., S. E.
MILWAUKEE, WIS.—Dr. G. V. I. Brown, 349 Prospect Ave., Pres.
DETROIT—1st Lieut. Angus McLean, M. R. C., David Whitney Bldg.
MARQUETTE, MICH.—1st Lieut. A. W. Hornbogen, M. R. C.
FORT SILL, OKLA.—1st Lieut. Herbert C. Woolley, M. R. C.
SPRINGFIELD, MASS.—1st Lieut. Charles F. Lynch, M. R. C., 387 Main St., Pres.
LOS ANGELES—1st Lieut. John J. Kyle, M. R. C., 702 Title Ins. Bldg.
OKLAHOMA—1st Lieut. Rex G. Bolend, M. R. C., 1524 West 29th St.
ROCHESTER, N. Y.—1st Lieut. John M. Swan, M. R. C., 457 Park Ave.
FORT ETHAN ALLEN, VT.—1st Lieut. Isaac W. Brewer, M. R. C.
FORT MOULTRIE, S. C.—1st Lieut. William A. Smith, M. R. C.
MERIDIAN, MISS.—1st Lieut. I. W. Cooper, M. R. C.
RENO, NEV.—1st Lieut. Raymond St. Clair, M. R. C., Nixon Bldg.
BISMARCK, N. D.—1st Lieut. Albert M. Fisher, M. R. C.
CHARLESTON, W. VA.—1st Lieut. John E. Cannaday, M. R. C., Capital City Bank Bldg.
FORT CROCKET, TEXAS—1st Lieut. James G. Flynn, M. R. C.
DALLAS, TEXAS—1st Lieut. Edgar W. Loomis, M. R. C., 236 Page Ave.
DOTHAN, ALA.—1st Lieut. Percy O. Chaudron, M. R. C.
STAUNTON, VA.—1st Lieut. Wilbur M. Phelps, M. R. C.
HARRISBURG, PA.—1st Lieut. Benjamin F. Royer, M. R. C., Donaldson Apartments.
JACKSONVILLE, FLA.—1st Lieut. Graham E. Henson, M. R. C., St. James Bldg.
FORT BARRANCAS, FLA.—1st Lieut. Clinton W. D'Alemberte, M. R. C.
TAMPA, FLA.—1st Lieut. Earle H. McRae, M. R. C., American Bank Bldg.
VANCOUVER BARRACKS, WASH.—1st Lieut. Charles E. B. Flagg, M. R. C.
FORT GEORGE WRIGHT, WASH.—1st Lieut. Charles E. Butts, M. R. C.
HELENA, MONT.—1st Lieut. William C. Riddell, M. R. C., 504 Dearborn Ave.
INDIANAPOLIS—1st Lieut. T. Victor Keene, M. R. C., Hume Mansur Bldg.
GREENSBORO, N. C.—1st Lieut. John W. Long, M. R. C., 119 Church St.
AUGUSTA, GA.—Dr. Theodore E. Oertel, 638 Greene St.
BALTIMORE—Dr. John S. Davis, 1200 Cathedral St.
PORTLAND, MAINE—Dr. William L. Cousins, 231 Woodford St.
FORT DES MOINES, IOWA—1st Lieut. James E. Kessell, M. R. C.
NEWARK, N. J.—1st Lieut. David A. Kraker, M. R. C., 236 Broad St.
SEATTLE—1st Lieut. Ira C. Brown, M. R. C., 901 7th Ave.
FORT CASWELL, N. C.—1st Lieut. Walter A. Newman, M. R. C., Southport, N. C.
NEW HAVEN, CONN.—1st Lieut. J. W. Churchman, M. R. C., 59 College St.
FORT SCREVEN, GA.—1st Lieut. Harry Rubin, M. R. C.
FORT SNELLING, MINN.—1st Lieut. Alexander R. Colvin, M. R. C.
WASHINGTON, D. C.—1st Lieut. Abram B. Hooe, M. R. C., 1220 16th St. N.W., Pres.

The following officers of the regular Medical Corps also have been instructed to receive applications for the Medical Officers Reserve Corps:

CHICAGO—Major William N. Bispham, Med. Corps.
PHILADELPHIA—Lieut. Col. Henry Page, Med. Corps, Aldine Hotel.
FORT SAM HOUSTON, TEXAS—Lieut. Col. M. W. Ireland, Med. Corps.
FORT CROCKETT, TEXAS—Capt. Robert C. McDonald, Med. Corps.
JEFFERSON BARRACKS, MO.—Major Henry F. Pipes, Med. Corps.
Capt. Frank N. Chilton, Med. Corps.
FORT LEAVENWORTH, KAN.—Major Kent Nelson, Med. Corps.
Capt. Ernest R. Gentry, Med. Corps.
FORT LOGAN, COLO.—Capt. John A. Burkett, Med. Corps.
OMAHA—Col. John M. Bannister, U. S. A., Ret., 400 Brandeis Theater Bldg.
FORT OGLETHORPE, GA.—Major Charles F. Morse, Med. Corps.
FORT MONROE, VA.—Major William L. Little, Med. Corps.
FORT BANKS, MASS.—Lieut. Col. Weston P. Chamberlain, Med. Corps.
SYRACUSE, N. Y.—Major James I. Mabee, Med. Corps, 309 Orange St.
FORT MOULTRIE, S. C.—Major George F. Juenamann, Med. Corps.
HOT SPRINGS, ARK.—Major Thomas L. Rhodes, Med. Corps, Army and Navy Gen. Hosp.
Capt. A. P. Clarke, Med. Corps, Army and Navy Gen. Hosp.
FORT WAYNE, MICH.—Major James Bourke, Med. Corps.
BOISE, IDAHO—Lieut. Col. Marshall W. Wood, U. S. A., Ret.
BUFFALO—Major W. W. Quinton, U. S. A., Ret., 232 Elmwood Ave.
CORONADO, COLO.—Major William L. Kneedler, U. S. A., Ret.
FORT SNELLING, MINN.—Major Guy V. Rukke, Med. Corps.
FORT WILLIAMS, MAINE—1st Lieut. Henry F. Lincoln, Med. Corps.
LOUISVILLE, KY.—Capt. N. L. McDiarmid, Med. Corps, Univ. of Louisville Medical College.
JACKSON BARRACKS, LA.—Capt. T. C. Austin, Med. Corps.
COLUMBUS BARRACKS, OHIO—Col. Charles Willcox, Med. Corps.
Major H. L. Gilchrist, Med. Corps.
SAN FRANCISCO—Col. Guy L. Edie, Med. Corps, Letterman Gen. Hosp.
Lieut. Col. Charles Lynch, Med. Corps, Hdqutrs. West. Dept.
FORT BENJAMIN HARRISON, IND.—Capt. John R. McKnight, Med. Corps.
FORT HOWARD, MD.—Capt. Taylor E. Darby.
WASHINGTON, D. C.—Col. L. A. LaGarde, Med. Corps, 2624 Woodley Place N.W.
Lieut. Col. C. C. McCullouch, Med. Corps.
Lieut. Col. W. H. Arthur, Med. Corps.
Major W. D. Webb, Med. Corps, 1803 Connecticut Ave. N.W.
FORT MCPHERSON, GA.—Lieut. Col. Thomas S. Bratton, Med. Corps.

THE GENERAL MEDICAL BOARD

Medical Education

The Committee on Medical Schools, of which Prof. J. M. Flint of New Haven, Conn., is chairman, submitted the following report to the Medical Board of the Council of National Defense on April 23:

Your committee feels compelled to record its appreciation of the patriotic and eager efforts on the part of the medical schools to meet the emergencies of the present crisis. However, in view of the absolute necessity of maintaining a supply of adequately trained men for the future needs of the army and navy, it cannot express too emphatically its hope that this enthusiasm may not lead to any greater disturbance of our normal education and hospital system than the present emergency demands. Owing to the enormous amount of work thrown on the executive staff of the Medical Section of the Council of National Defense, the committee regrets that it has not been able to put its reports into the hands of the medical schools more promptly and, in turn, to know of their plans—a fact which has made it difficult to determine just what action was being taken in various parts of the country on the recommendations of the board.

Last week, for example, it was brought to the attention of your committee that more schools were planning to adopt the continuous teaching plan than either the needs of the service or circumstances warranted—some complaining that they were being forced to act by competition, others that pressure was being brought to bear by overeager students for the adoption of the system. Conditions indicate that our entire educational and hospital system may be called on to endure a strain, which will require the wisest foresight and caution to prevent it from being wrecked. It seemed wise, therefore, to ask schools to delay further action on the continuous teaching system until a census could be taken, as it is quite certain that too wide an adoption of this policy would not only disorganize the civil hospitals, but also would leave a gap where no men are being trained until the colleges can provide a new supply of medical students. We are on the threshold of England's blunder for the army requires a continuous supply of men with hospital experience.

After a careful consideration of the question, the Executive Committee of the Medical Board of the Council of National Defense urges all medical schools to abandon the plan entirely, as a simple substitute has been devised which is acceptable to the navy and does not endanger our present system at all, but keeps the normal academic schedule as one most likely to maintain a continuous supply of graduates who are prepared to take a hospital service. A meeting of the deans of medical schools has been called in order that the matter may be clearly explained to them and that further misunderstanding be avoided.

Your committee recommends that this board give the widest possible publicity to the wishes of the surgeon-general of the army who wants only men with hospital experience. Accordingly it particularly urges on graduates of the present year who have already contracted with civil hospitals to fulfil the obligation thus implied by securing the hospital experience which the army deems essential.

The medical board has received the following recommendation from one of the medical schools, which has been referred to your committee:

That requests be made of all the "A" grade medical schools now requiring one premedical college year for entrance to medical school, and the Council of National Defense to join in a request of the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges, to defer the requirement of two years of premedical college work for entrance, until at least the year 1920, or until the exigencies of the war have relieved the need and demand for more medical men.

After careful consideration of the recommendation your committee suggests the following memorandum for your consideration and action:

The Medical Board of the Council of National Defense though highly appreciating the patriotic spirit shown by this institution is not prepared for the present to endorse the proposition to postpone the application of higher standards for admission to the Class "A" medical schools until the need for such action becomes more clearly imperative.

Your committee has also received reports that an increasing number of premedical students are leaving college to enlist in various line organizations. It would consider it a wise precaution, therefore, in conserving the future supply of medical students for the board to use all the means in its power to hold such students in college even should it be necessary to ask the president to issue a special proclamation on the subject calling attention to the fact that it is the patriotic duty of such students to remain under instruction until the country can avail itself of their trained services.

This fact also emphasizes the importance of a communication just received by your committee from the dean of one of our medical schools inspired by some of his students who demand protection against a possible "white feather or yellow crusade" by some form of recognition of the fact that such men are performing an indirect military service for the country. The problem, we understand, is under consideration by the Council of National Defense for the industrial army and we recommend that the medical group be included in its scope.

Another dean feeling the spirit of unrest among medical students requests the medical board to send a notice directly to the student body calling their attention to their duty in the present crisis. Accordingly your committee would recommend the following:

NOTICE TO MEDICAL AND PREMEDICAL STUDENTS

In the present national crisis a continuous supply of adequately trained medical officers is absolutely essential for the maintenance of armed forces in the field. It would be folly for the country to prepare for the immediate emergency alone —we must face the possibility of the war lasting for years. It is, therefore, the patriotic duty of all college students intending to study medicine to remain under instruction until the country can avail itself of their trained services.

Medical schools are in a sense "munition works" necessary to produce trained medical officers for the army and navy. All medical students must, therefore, in the interest of national safety continue their work until graduation. With the exception of such men as the navy can utilize, all graduates are urged to secure a hospital training which the surgeon-general of the army and navy consider essential for their arms of the service.

The Committee on Hospitals

The Committee on Hospitals of the General Medical Board of the Council of National Defense, in its report to the General Board on April 23, submitted the following letters and recommended that they be sent to the principal hospitals of the country. The recommendation was adopted.

TO HOSPITALS OF ONE HUNDRED BEDS AND OVER

The following letter is to be sent to all hospitals of 100 beds or over:

During this crisis in the national affairs, it is imperative that the medical resources of the country be so organized as to safeguard the civil hospitals and civil population, and at the same time to release as many men as may be possible for service with the army. The medical department of the army is faced with the responsibility of furnishing medical officers in large numbers for the proper examination of recruits and the manning of military hospitals.

It is, therefore, requested that this letter be brought to the attention of the trustees and medical staff, and that the staff of your hospital be reorganized and that a list be forwarded to the Hospital Committee, Council of National Defense, Munsey Building, Washington, D. C., within three days of the receipt of this letter. It is requested that this list shall give the names and addresses:

1. Of the hospital.
2. Of those members of the visiting, resident, and dispensary staffs who are needed to remain at home to man the civil hospital.
3. A list of the members of the staff who can be spared.

In the lists of those who should remain at home and those who can be spared, indicate with the letters M. R. C., the men who are members of the Medical Reserve Corps. Also in the list of those who can be spared, indicate those men who are not at present members of the Medical Reserve Corps but who are willing to become members. These should be urged at once to forward their applications to the surgeon-general's office for membership in the Medical Reserve Corps.

It is important that these lists be prepared and sent in immediately. At least 10,000 medical officers will be required and probably more. Unless information such as will be afforded by the preparation of these lists is available as a source of information to the office of the surgeon-general, it will probably be necessary to call out all members of the Medical Reserve Corps, and it might even be necessary to resort to other drastic measures. In this event great hardships would be worked on many of the civil hospitals. It is to prevent disorganization of civil hospitals and interference with the civil activities that this list is requested. It is assumed that you may be counted on for cooperation and prompt response to this request.

TO ALL HOSPITALS

The following letter is to be sent to the superintendents of all hospitals in the United States:

During the past two weeks a committee on standardization appointed by the Council of National Defense and representing medicine, surgery and all of the specialties has been assembled in Washington for the purpose of standardizing all staple supplies needed for hospital use. The purpose of this was twofold:

1. As an aid to the medical departments of the army, the navy, the Public Health Service, the American Red Cross and civilian requirements.
2. In order to prevent unnecessary duplication of articles which the manufacturers would be called on to make, thereby increasing the production of standard articles.

A list of the standards adopted will be sent to you shortly. You are requested to cooperate in this work by confining all new orders to articles specified in the approved list, unless the articles which you wish are already in stock. Your cooperation in this matter will be of tremendous assistance in speeding up production and enabling the medical departments of the army, the navy, the Public Health Service, the American Red Cross and civilian requirements to obtain the necessary supplies.

The effort to acquire a reserve stock of hospital equipment in order to expand in the event of need is approved, but hospitals are urged to do this gradually in order not to cause a sudden increased demand. The manufacturers are cooperating in an excellent spirit, and with a little time will be able to meet all needs. The standard list will be revised from time to time as is found necessary.

Bread in Italy.—The official decree went into effect, March 1, providing that 90 per cent. of the whole wheat grain is to be milled into flour for bread.

Ambulance for France.—The staff of Teachers' College, New York, has sent an equipped ambulance, costing $1,000 to the Ambulance Corps in France.

Epidemic Under Control.—The epidemic of measles, pneumonia and spinal meningitis at the Naval Training Station, Great Lakes, is reported to be under control.

New Base Hospital.—To the list of base hospitals recently published in THE JOURNAL should be added Base Hospital, No. 34, Philadelphia (Episcopal Hospital), with Dr. Charles H. Frazier as director.

Ambulances Given.—Mrs. Marcus Kavanagh, Chicago, has obtained a gift of five ambulances for service on the French front. Two of these amublances were donated by Chicago Lodge, B. P. O. E., No. 4.

Lowered Death Rate at Saloniki.—The *Riforma medica* quotes the *Agenzia dei Balcani* to the effect that the cleaning up of Saloniki and its vicinity by the military forces now occupying it has resulted in the reduction of the death rate to less than one fifth of that in previous years.

Physicians on Munitions Board.—The creation of a general munitions board was announced by the Council of National Defense, April 9. Among the members of this board are: Dr. Franklin H. Martin, Chicago; Lieut.-Col. Henry C. Fisher, M. C., U. S. Army, and Surg. Richmond C. Holcomb, U. S. Navy.

Surgeons and Nurses Go Down with Hospital Ship.—Of the fifty-two persons who were drowned when the British Hospital Ship *Salta* was sunk by a mine in the English Channel, April 8, five were medical officers, thirty-eight were members of the Royal Army Medical Corps, and nine were nursing sisters.

Medical Reserve Organization in Albany.—The Association of the Medical Reserve Corps, United States Army, capital district division, Albany, N. Y., has been perfected, and the following officers were elected: president Lieut. J. Lewi Donhauser; vice president, Lieut. Henry L. K. Shaw, and secretary-treasurer, Lieut. Harold D. Cochrane.

Immunologists Volunteer Services.—The American Association of Immunologists, at its meeting in New York, April 6, resolved to offer its services as a body and as individuals, and also to offer the facilities of the laboratories of the various members to the federal and respective state governments.

Plan to Continue Medical Studies in the Field.—The University of Chicago, Ambulance Corps, known as Ambulance Company No. 3, is raising funds to furnish the company with a portable field laboratory and library, that the men may be enabled to continue their studies. An auto truck completely furnished is to be purchased.

Medical Reserve Corps Organized.—At a meeting of 200 physicians, dentists, nurses and druggists at Johnstown, Pa., April 12, permanent organization of a medical reserve corps was effected. Dr. George W. Wagoner was elected president; Miss Ida W. Gailey, first vice president; Miss Leota Guffy, second vice president, and Dr. Henry J. Cartin, secretary-treasurer.

Ambulance Company Items.—The students of Tulane University, New Orleans, through Dr. Rudolph Matas, professor of surgery, have offered an ambulance company to the government for war service.——An ambulance company is being organized at Canton, Ohio.——The medical detachment of the Third Oregon Infantry makes an appeal for its proper equipment of ambulances.

Convalescent Home Offers Facilities to Nation.—The facilities and service of the Winifred-Mastison Burke Relief Foundation have been offered to the nation for service in time of war. The foundation conducts a main convalescent home in Westchester County, 20 miles from New York, and two branch institutions with a total bed capacity of about 300. The service is offered for convalescent soldiers and sailors, with occupational advantages and facilities for the reeducation of the crippled.

Camp Veterinary School in Italy.—THE JOURNAL has mentioned several times the Italian plan of having the medical students serving in the army at the front provided with opportunities for carrying on their medical course as circumstances permit. The *Universita castrense* is located close to the firing line, is well equipped, and has an imposing array of professors. The *Riforma medica* now announces that a camp veterinary school is to be organized along the same lines, although not so close to the front. It is to be located at Bologna.

Resolutions by the Chicago Laryngological and Otological Society.—Members of the Chicago Laryngological and Otological Society have agreed that those who remain at home will take care of the practice of those who go, and will keep an accurate account of receipts from all patients received by reason of the absence of other members in the country's service. All such money will be turned over to the absent physicians and surgeons or their families.

Each member who goes to the front is to notify his patrons of this resolution and ask them to cooperate in carrying out the intent of the resolutions.

Illness Among Illinois Troops.—A case of smallpox has caused the quarantining of Company A, Sixth Illinois Infantry, at Rock Island.——Two companies of the Sixth Infantry at Camp Lowden, Springfield, have been isolated on account of the prevalence of scarlet fever and measles in their ranks.——There are now fourteen pneumonia cases among the Sixth Infantry, under treatment at St. John's Hospital, Springfield, and two deaths have occurred.——Through the efforts of Mrs. Lowden and Mrs. J. Ogden Armour, Miss E. F. Dawson, a trained nurse from St. Luke's Hospital, has been sent to the regimental hospital at Camp Lowden, Springfield.

Sanitary Experts Needed.—The Council of National Defense is endeavoring to obtain information relative to men and women in the United States who have special ability along sanitary lines, and would be available in case of war. These include sanitarians who have had experience in public health work; bacteriologists and their laboratory workers; sanitary engineers, whose experience would enable them to judge of the security of water supplies, to direct sanitary surveys of watersheds and the installation of plants for the treatment of water, and nurses who have had experience in sanitary survey work or other researches along sanitary lines.

Casualty Association Referendum.—The Physicians' Casualty Association of America, Omaha, has sent a circular letter to the members of the association calling for a referendum vote on the question "Shall the Physicians' Casualty Association assume risk of present members, who enlist as medical officers in the United States Army, and if so, to what extent," on the following three points:

1. Service on American soil.
2. Land service on foreign soil.
3. Service at home or abroad, including marine risks.

The directors of the association favor the extension of full benefits to those members who respond to the call of duty to serve their country in war.

Roentgenologists Prepare.—A committee of preparedness has been appointed by the president of the American Roentgeon Ray Society. It consists of Drs. Lewis Gregory Cole, George W. Holmes, Leopold Jaches, Willis F. Manges and Harvey W. Van Allen. An auxiliary advisory committee has also been created.

The committee plans: The canvass of the country for a complete list of medical men available for military roentgenology; the establishment of schools in different geographical centers where uniform instruction in military roentgenology may be obtained, and the preparation of a manual on military roentgenography. Men willing to volunteer will kindly communicate with the Committee of Preparedness of the American Roentgen Ray Society, with headquarters at Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York.

Bazaar Receipts Exceeded Half a Million.—The final statement of the receipts and disbursements of the Allied Bazaar, held in Chicago last January, show net receipts of $535,868. The disbursements were as follows:

American commission for training in suitable trades maimed soldiers of France	$28,188.53
American fund for French wounded	28,673.70
American ambulance hospital at Neuilly	36,546.65
B. F. B. permanent blind relief war fund	26,706.59
British Red Cross	19,454.52
Canadian Red Cross	51,094.42
Commission for relief in Belgium	11,675.02
Italian Red Cross	25,344.95
Women's National Health Association	18,090.61
Fatherless children of France	15,073.50
Polish central relief committee	21,034.37
Star and Garter Hospital	14,492.00
War relief clearing house	13,891.15

There is still a balance on hand of $574.49.

Will Conserve Practices of Medical Officers.—The Atlantic County (N. J.) Medical Society, at its meeting, March 30, passed a resolution to take care of the practices of physicians who should go to the front and to turn over all fees collected to him or his family and to return the practice to the officers on their return from war service.——At the meeting of the Wayne County Medical Society held in Detroit, April 9, Major E. P. Biddle, a veteran of the Spanish-American War, stated that it was the duty of the young men to give up their practices and go to war, and of the older men to take care of the practices of the young men while they are away.——The members of the Spokane County (Wash.) Medical Society are considering a plan submitted by Dr. H. B. Cuhn, whereby any member of the society who enters the army or navy should receive pecuniary compensation based on his average income and the salary to be received by the government.——The Indianapolis Medical Society, at its meeting, March 27, adopted a resolution without dissentient voice which provides that the practice of any physician who enters the Medical Reserve Corps of the army or navy shall be preserved intact during the time he is in the service of his country.

Cincinnati Municipal Tuberculosis Committee Acts for Preparedness.—This committee has arranged its program for 1917 with a view to the prevention and adequate care of tuberculosis among soldiers and citizens, due to the entry of the United States into the world war, in order to prevent such horrible ravages as those wrought by this disease among the European armies. The program of the committee is divided into the following subjects: preparation for war conditions, vagrant consumptives, registration of tuberculous and examination of contracts, removal, medical and nursing education, industrial hygiene, state institutions, educational work, dispensary service, employment, infant welfare, camp and institional care, housing, taxation. The committee suggests as a special war precaution that tuberculosis experts be employed by the government and state military authorities at every recruiting office, so that the cases of those suffering from tuberculosis may be properly diagnosed and that the patients may receive proper care in federal sanatorium camps to be established by the Council of National Defense or in state institutions. The program is outlined with Cincinnati conditions in mind, but the suggestions are of general application.

Employment of Children in Agriculture.—A plan has been formulated by the National Child Labor Committee to utilize the labor of children of the country to the greatest advisable extent in the cultivation of the crops of the coming season, the necessity for which has been made more acute by the supposed shortage of food and the state of war. The committee has sent a circular outlining its plan to every state, county and city school superintendent, the secretaries of agriculture and labor, the Commissioner of Education, the Chief of the Children's Bureau, the Council of National Defense, and others. Under this plan the children are divided into two classes, those under and those over 14. The former are recommended for use at home in garden work, or under the supervision of parents or guardians. The latter may be made use of on farms, under proper regulation as to work and conditions of service. The idea is advocated that boys should be used in groups and kept in camps under careful supervision, as in the camps of boy scouts, and not placed singly with farmers, who would then have the trouble and responsibility of their care. Suggestions as to hours and conditions of work, release from school, and many others are made in the circular for safeguarding the welfare of the children thus to be employed, and America is cautioned to profit by the experience of England, where in the beginning of the exploitation of child labor in agriculture and factory work the policy pursued was found to be too radical and was short-sighted, because it too recklessly set aside former standards.

Report on Toxic Jaundice Among Trinitrotoluene Workers.—The Royal Society of Medicine is about to publish a report on a discussion on toxic jaundice among workers in trinitrotoluene factories, which was held with the approval of the ministry of munitions. This report is fully illustrated. Among the participators in the discussion are: Surgeon-General Rolleston, chairman; Dr. E. L. Collis, Dr. Benjamin Moore, F. R. S.; Major Morley Fletcher, R. A. M. C.; Dr. O'Donovan, medical adviser, ministry of munitions; R. C. Munday, fleet surgeon; Capt. M. J. Stewart, R. A. M. C., and Lord Chetwynd. American physicians and manufacturers who desire copies of this report should notify the secretary of the society at once, as the Royal Society can print but one edition. Single copies of the report may be obtained for $1 and 10 cents for postage; a dozen or more copies will be sent postpaid. The address is J. Y. W. McAllister, 1 Wimpole Street, London, W.

How They Protect the Absent Physician in England.—The medical profession in England has presented to the physicians who stay at home the following suggestions:

1. When a new patient presents himself, the physician staying at home should ask the name of the doctor who last attended him. If this doctor is absent on service, and has left a locum tenens, an attempt should be made to induce the patient to go to the locum tenens.

2. If the last doctor who attended him is on military service, it should be explained to the patient that attendance will willingly be given on behalf of that practitioner and on no other terms.

3. Any attendance on behalf of such patients should be carefully and separately recorded, and a list of such attendances sent at regular intervals to the representative of the absentee.

4. An attempt should be made to ascertain the fees charged by the absentee, and a charge not less than this should be made on his behalf.

5. Accounts rendered on behalf of the absentee should mention the absentee's name, and moneys received should be divided according to the scheme adopted by the local Medical War Committee.

6. The rule of dividing the fee should apply to all kinds of work.

7. New patients introduced by a patient of an absentee should be regarded as belonging to the absentee's practice.

8. In cases in which the patient's frequent change of physician leads to doubt as to who should be regarded as the regular attendant, the absentee should be given the benefit of the doubt.

9. No patient attended on behalf of an absentee should be attended by the deputy for at least one year after the absentee's return.

10. The greatest discretion should be used as to the introduction of a partner or assistant, or in commencing a new practice in an area from which men are absent on service.

11. Physicians newly located in a given district should be doubly scruplous in regard to the practices of absentees, and should at once ascertain and join in any arrangements that have been made for the protection of absent practitioners.

12. The honor of the profession is involved when a vacancy occurs through the death of a practitioner while in service. Definite arrangements have been made to meet such a contingency in some communities, and should be made in all. Every assistance should be given in enabling the successor to the practice to get a fair start. Local practitioners should carry out the same procedure with regard to the successor as they had undertaken with regard to the man who has fallen while in service.

13. In all cases of doubt as to what is the right course of action as regards an absentee, the practitioner should consider what he would like his neighbor to do if he were absent on military service. The local Medical War Committee, or the Central Medical War Committee are always ready to advise.

In January, 1915, the Scottish Medical Service Emergency Committee issued a statement dealing with the carrying on of the practice of medical men on active service. Later in the same year the Central Medical War Committee for England and Wales issued a similar circular. In both of these it was pointed out that the men going on active service have a right to expect that their interests would be protected by those who remain at home, and it was suggested that where the locum tenens could not be provided, the work should be done by a division of the money earned by the practice of the absentee along the following lines:

(*a*) Town Practice: An equal division of the proceeds between the absentee and his deputy or deputies.

(*b*) Combined Town and Country Practices: Three eighths to the absentee and five eighths to the deputy, the latter to pay the expenses.

(*c*) Country Practices Where Traveling Expenses are Important: One fourth to absentee, three fourths to the deputy.

Since human nature is what it is, and physicians are human, these rules have not always been followed, and the Central War Committee has endeavored to call the attention of the profession in England to the following general principles:

(*a*) No scheme will be satisfactory which has not behind it (1) the good will of the men who are to work it; (2) the

confidence of the men who are going into active service, and (3) the strong moral support of the local Medical War Committee. This presupposes that the scheme has been fully discussed at a meeting of the whole local profession.

(*b*) It is preferable that there should be a local agreement between the absentee and his deputy or deputies, although it is recognized that this may be impracticable in some cases.

(*c*) The local Medical War Committee should, in such an agreement, be vested with the power of dealing with any disputes which may arise between the absentee and his deputies. The decision of the committee should be binding. The committee should also have the power of appointing another deputy in case of need.

(*d*) Any such agreement should contain provisions whereby the absentee is indemnified against all acts of negligence committed by the deputy.

(*e*) The scheme and agreement should in all cases bind the deputies to refuse to act as the medical attendant of the patients attended for the absentee until a specified time (one or two years) after the absentee's return.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

GEORGIA

Resolutions Adopted by Medical Society on the Drug Supply.—The Stewart and Webster County Medical Society has adopted resolutions on the shortage of drugs due to the granting of patents, voting to call the matter to the attention of the congressman from that district and to bring the matter before the Medical Society of Georgia. The resolutions were adopted, April 13.

ILLINOIS

Rush Alumni Dinner.—All Rush alumni attending the meeting of the state medical association at Bloomington are urged to attend the alumni dinner, Wednesday, May 9, and to send their names as soon as possible to Dr. Franklin C. Vandervort, Bloomington.

Women's Clubs to Conduct Registration Survey.—The Illinois Federation of Women's Clubs is planning a birth and death registration survey of the state for the purpose of correcting deficiencies in the registration of births and deaths, and securing recognition of Illinois as a registration state.

Disease Closes School.—The public schools of Rushville were closed, April 6, for two weeks on account of the prevalence of measles and chickenpox.——Seventy persons with smallpox are reported to be under quarantine at Beardstown, and an order has been issued requiring vaccination of all public schoolchildren.——It is reported that there are thirty-four cases of smallpox at Stronghurst, and Dr. Edwin B. Godfrey of the state board of health has been sent to take charge of the situation.

Chicago

Visitors at Institute of Medicine.—At the meeting of the Institute of Medicine of Chicago, April 24, Dr. Charles V. Chapin, superintendent of health of Providence, R. I., spoke on "The Relative Value of Public Health Procedure," and Surg. Wade H. Frost, U. S. P. H. S., Cincinnati, delivered an illustrated address on "Epidemiology of Poliomyelitis."

Medical History Society Meets.—At the meeting of the Society of Medical History, April 27, Prof. Morris Jastrow, Jr., Philadelphia, delivered an address on "Medicine of the Babylonians and Assyrians," illustrated by lantern slides and ancient medical tablets. A paper was discussed by Prof. J. H. Breasted of the University of Chicago.

Sachs' Management Vindicated.—The subcommittee of the finance committee of the city council of Chicago, in a unanimous report, vindicated the management of the Municipal Tuberculosis Sanatorium by the late Dr. Theodore B. Sachs. The committee said that not a scintilla of evidence had been presented to support the charge that Dr. Sachs had used the sanatorium to build up his private practice.

Robert Koch Society.—At the twenty-eighth meeting of the Robert Koch Society for the Study of Tuberculosis, April 26, at the Great Northern Hotel, Dr. James W. Pettit, Ottawa, spoke on "The Development of the Sanatorium Movement in Illinois." Dr. John A. Turner, Antioch, spoke on "An Efficiency Method, Standardization and Cooperation," and Dr. Walter A. Gekler of the Chicago Municipal Tuberculosis Sanatorium presented a paper on "Phthisiogenesis."

INDIANA

Smallpox Epidemic.—Smallpox is reported to be epidemic in Indiana Harbor. Seventeen patients are said to have been taken from there to the Chicago Isolation Hospital, April 17.

Grading of Milk.—The state board of health, Indianapolis, has adopted regulations that will grade all milk sold in Indiana and provide for the labeling of each grade, under penalties for failure to comply with the regulations. This rule goes into effect Jan. 1, 1918, and follows closely the special investigation committees, which represent all states.

Personal.—Dr. J. Rilus Eastman, who has been in charge of a base hospital abroad, has sailed for home, and expects to reach Indianapolis this week.——Dr. Mitchell O. DeVaney has been appointed health commissioner of Indianapolis, succeeding Dr. Jay D. Nusbaum.——Dr. James A. Duggan, South Bend, has been appointed assistant surgeon in the navy.

New Members of State Board.—Dr. John H. Hewitt, Terre Haute, has been appointed a member of the state board of health, to succeed Dr. John L. Freeland, Indianapolis, resigned. Dr. Hugh A. Cowing, Muncie, has been appointed to succeed Dr. Harley H. Sutton, Aurora. Dr. James S. Boyers, Decatur, will continue as a member of the board, pending the election of his successor.

IOWA

Children's Hospital Bill Passed.—The senate, April 7, unanimously passed the bill appropriating $150,000 for a hospital for deformed children at Iowa City.

Hospital News.—The Isolation Hospital at the University of Iowa will be ready about the middle of May and will accommodate fifty patients.——The Miners Hospital, Albia, is now located in its new home on Second Avenue West.

Personal.—Dr. James A. Bisgard, Harlan, while returning from a professional call, April 13, drove his car into a pile of paving material in the street, seriously damaging his car and sustaining severe injuries himself.——Dr. C. Darwin Enfield, Jefferson, has been accepted for service, and has been directed to report at the Base Hospital, St. Valery, France.——Dr. Frederick C. Skinner has been appointed health physician of LeClaire to succeed himself.

KENTUCKY

Hospital News.—The Hazard General Hospital has been incorported with a capital stock of $4,000.

Personal.—Dr. Bernard J. O'Connor has been elected a member of the board of trustees of the Louisville Tuberculosis Hospital.

License Required for Anesthetists.—In a friendly suit brought by Dr. Louis Frank and Miss Margaret Hatfield, Louisville, against the state board of health, to determine whether the board has the authority under the law to require nurses to take an examination and obtain a license before administering anesthetics, Judge Curby has decided that the provision in the law pertaining to physicians and nurses is a police regulation, designed for the protection of society, that in all such matters the right of the individual must be laid aside for the safeguarding of the public, and that from the evidence submitted in the case, it is apparent that Miss Hatfield can and should submit herself for examination by the state board of health, and qualify to perform the services for which she is employed.

LOUISIANA

Hay-Fever Clinic.—A free clinic for the prevention and treatment of hay-fever was opened at the Charity Hospital, New Orleans, April 2.

Hospital for Negroes.—The negroes of New Orleans have organized the Providence Sanatorium Stock Company, the object of the organization being to provide a hospital for negroes, owned and controlled exclusively by negroes.

Tuberculosis in New Orleans.—At the meeting, April 4, of the board of directors of the Charities Organization Society, over which Dr. John F. Ochsner presided, it was decided to give $2,000 each year for the aid of tuberculosis cases. The first donation of $2,000 has already been made.

Personal.—Dr. James M. Batchelor has been appointed chairman and Dr. Albert S. Yenni, secretary of the medical advisory board of the Charity Hospital, New Orleans.——Dr. William H. Robin has been elected superintendent of public health of New Orleans and chairman of the city board of health.——Dr. Frank R. Gomila has been elected secretary of the New Orleans board of health and Dr. George H. Hauser, assistant bacteriologist.

Malarial Survey.—Asst. Surg.-Gen. Henry R. Carter, U. S. P. H. S.; Mr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company; Dr. Oscar Dowling, Shreveport, president of the state board of health, and Dr. William H. Seemann, New Orleans, state bacteriologist, began a tour of the state, April 9, to make a survey of the malaria conditions. The survey will include thirty-five towns and cities, and will be ended April 19.

MARYLAND

Personal.—Dr. Oswald S. Lowsley, New York, formerly of Baltimore, and former assistant to Dr. Hugh H. Young, will be director of the Urologic Clinic in New York, provided for in the will of the late James Buchanan Brady, which is to be established as part of the New York Hospital. ——Dr. L. Palmer Holmes will succeed Dr. Lewis A. Sexton, Baltimore, as chief of the Johns Hopkins Dispensary, May 1.——Dr. William C. Leavenworth of the University of Virginia has been appointed third assistant superintendent to the Johns Hopkins Hospital.——Dr. Clement A. Penrose has been named by Mayor Preston as chairman of the new Food Economy Commission of Baltimore.

Meetings.—The one hundred and nineteenth annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Baltimore, April 24 to 26, at the Faculty Building. At the session on the evening of the 24th, two portraits were presented to the faculty, one of Dr. John W. Chambers by Dr. Alexius McGlannan, the other of Dr. Jacob H. Hartman, by Dr. Harry Friedenwald, all of Baltimore. Dr. Henry Barton Jacobs, Baltimore, read the report of the Osler Testimonial Committee, stating that sufficient money had been raised to establish an Osler Fund for the purchase of books for the Medical Library. On the afternoon of the 25th, Dr. Benjamin S. Warren, Washington, D. C., United States Public Health Service, made an address on "Health Insurance: Its Relation to the Medical Profession, and to the Public Health," followed by Dr. J. Hall Pleasants, Roland Park, who spoke on "Health Insurance: Proposed Legislation." The third evening was devoted to a symposium on medical education. Dr. J. McPherson Scott, Hagerstown, Md., spoke of the attitude of the state toward the medical school; Dr. John G. Bowman, director of the American College of Surgery, on "Hospital Standardization," and Dr. Gordon Wilson, Baltimore, on "The Problem of Hospital Interns and How Best to Meet It in the Future." The annual smoker was held in the Banquet Hall on the second evening.

NEW YORK

Personal.—Dr. Matthew D. Mann, Buffalo, president of the Churchmans Club, delivered an address, April 12, at Erie, Pa., on "The Mission from a Businessman's Standpoint."——Dr. Walter E. Deuel, Adams, has been appointed superintendent of the Oswego County Tuberculosis Sanatorium, Orwell, succeeding Dr. A. Garfield Dunbar, Richland, resigned.

Prevention of Disease.—The course of public lectures on "Public Health and Preventive Medicine" which is being given under the auspices of the Albany Medical College, at the State Educational Building, on Wednesday afternoons at 5 o'clock will be as follows during May:

May 2: Vital Statistics, Dr. William H. Guilfoy, Registrar of Records, Department of Health, City of New York.

May 9: The Study of Epidemics in the Field, Dr. John A. Smith, Acting Secretary, New York State Department of Health.

New York City

Infantile Paralysis.—A case of suspected infantile paralysis was discovered, April 18, in the Williamsburg district of Brooklyn.——Two cases of infantile paralysis were reported, April 23, by the New York department of health.

Children's Court Quarantined.—The Bronx Children's Society has been put under quarantine because of an outbreak of diphtheria. The first case was discovered April 16, and since that time eight additional cases have developed.

Epidemiologic Test for Suspected Typhoid Fever.—The laboratory of the health department announces that it is prepared to make epidemiologic tests in puzzling and indeterminate cases of continued fever with vague clinical histories that are suggestive of typhoid fever.

Class Reunion.—The class of 1907 of the College of Physicians and Surgeons in the City of New York will hold its decennial reunion and banquet at the Columbia Club, 18 Gramercy Park, on the evening of June 5. Dr. Theodore H. Allen, 3905 Broadway, is secretary of the committee on arrangements.

Physicians Acquitted.—The committee appointed by the East New York Medical Society to inquire into the complaint made against Dr. Philip Oginz, charging him with having violated the Harrison Narcotic Law, in that he prescribed heroin without a physical examination and without keeping a record of the prescriptions, reported that the prescriptions were given in good faith in an honest endeavor to cure a patient of the heroin habit.

Personal—Dr. Emil J. Pellini has been appointed assistant professor in pharmacology in the University and Bellevue Hospital Medical College.——Capt. Moses Ashby Stivers, Middletown, M. C., has been commissioned major, M. C., N. Y. N. G.——Lieut. Mills Larson, M. C., has been assigned to the Twenty-Third Infantry.——Dr. Raymond W. Lewis, Squadron A., has been commissioned first lieutenant of the Medical Officers Reserve Corps.——Capt. Charles W. Lynn, M. C., has been promoted to major.

Unions Organize Against Disease.—Representatives of various labor unions recently met Dr. Louis I. Harris, head of the division of industrial hygiene of the department of health, and planned for cooperative effort to check occupational disease. Representatives of labor unions will act as a vigilance committee guarding sanitary standards, will confer with the sanitary agencies, and will also disseminate needed information among workers. More than seventy members have already been appointed by their unions to serve on a committee under the direction of the division of industrial hygiene.

PENNSYLVANIA

Twenty-Fifth Reunion.—The members of the class of 1892 of the Pennsylvania Medical College held their twenty-fifth annual dinner in the Fort Pitt Hotel, Pittsburgh, March 24. Dr. John A. Hawkins was chairman of the committee of arrangements.

Vaccine Patients in Hospital.—On accounnt of a case of smallpox in a nurse in the Warren State Hospital, the vaccination of the 2,000 patients and nurses at the institution was begun, April 6.——The state department of health has warned physicians of the danger of a smallpox epidemic, and is carefully watching the smallpox situation at Hillsville, Wampam and Newcastle.

Personal.—The office of Dr. Jesse Sprowls, Donora, was destroyed by fire, April 6.——Dr. Edward A. Weiss, Pittsburgh, while driving his car, April 6, collided with a pole, and received severe cuts of the head from broken glass.——Dr. Joseph P. Ritenour, Uniontown, has been appointed head of the Pennsylvania State College health service, Connellsville, succeeding Dr. Warren E. Forsythe, resigned, to take service with the Rockefeller Foundation.

Philadelphia

Prohibition Demanded by County Medical Society.—The Philadelphia County Medical Society, April 18, adopted a resolution asking Congress to probihit the manufacture and sale of alcoholic drinks.

New Health Center.—The board of directors of the Babies Hospital has selected the site for the new modern health center. The nucleus of the fund was $50,000 given by Mrs. Edwin Douglas to the children of Philadelphia last July. It will be a combined babies clinic and dispensary, and will be in one of the congested districts of the city.

Physicians Organize for Betterment.—A movement to improve the social and economic status of physicians throughout Philadelphia was instituted at a meeting held in Odd Fellows Hall on Thursday, April 12, plans being discussed for the establishment of a higher minimum fee rate, as well as the founding of a permanent association for promoting the welfare of Philadelphia physicians. The newly created organization is to be known as the Physicians' Business Association. Membership will be open to all regularly licensed physicians practicing in Philadelphia County graduated from recognized schools of medicine. A propaganda will be instituted to interest all of the profession in an increased minimum fee schedule. Other needed reforms will be considered in the near

future. The following officers were elected: president, Dr. Edwin S. Cooke; vice president, Dr. James H. Baldwin; secretary, Dr. James H. Cunningham, and treasurer, Dr. John H. Remig.

Personal.—Dr. Edward Cameron Kirk, dean of the Dental School of the University of Pennsylvania, and Drs. Matthew H. Cryer and Edwin T. Darby of the faculty have resigned, under the university age limit rule of 65 years.——Dr. Fred A. Fraser, Byberry, has been appointed assistant physician to the bureau of charities.——Dr. William J. Enders, Eagleville, has been elected medical superintendent of the Protestant Episcopal City Missions Home for Consumptives, Chestnut Hill, to take charge the first of May.——George E. Nitzsche, recorder of the University of Pennsylvania, has been appointed executive secretary of the Committee on Medicine, Sanitation, and Red Cross, the most important subcommittee under the Committee of Public Safety of Philadelphia, of which George Wharton Pepper is chairman.——Dr. John B. Deaver was guest of honor at the annual banquet and reception of the Northern Medical Association held at the Hotel Rittenhouse, April 27. Dr. Deaver addressed the society on "Some Considerations of Surgery."——Dr. Julius Proper, Manayunk, was painfully injured in a collision between his automobile and another car, April 10.——Dr. Lina D. Schwatt has been appointed clinical physician at the Philadelphia Hospital for the Insane, Byberry.

TEXAS

Legislature Passes Health Laws.—The thirty-fifth legislature, out of 900 bills introduced in the house and nearly 500 in the senate, enacted a number of important measures, of which several are health laws. An employers' liability act extends the time of medical compensation from one to two weeks. A vital statistics law establishes a state bureau of vital statistics under the state board of health. An intensive rural health law appropriates $70,000 for the state health department for cooperation with counties and with the Rockefeller Foundation for the control of malaria and hookworm. Bills were passed creating a northwest Texas insane asylum, a negro insane asylum, a school for the blind and a state training school for the adult blind. A quarantine station at Sabine Pass was also provided for. Free treatment for indigent patients threatened with hydrophobia also was provided. The annual tax of itinerant medicine vendors was increased from $50 to $100.

WYOMING

Sanatorium Dedicated.—The C. Dana Carter Sanatorium, Thermopolis, was formally dedicated, April 3. The exercises were the first that had ever been held in the state for a building erected on state grounds by private capital.

Scarlet Fever.—On account of the prevalence of scarlet fever in Laramie, the mayor issued a proclamation, April 3, ordering the closing of all schools, churches, and moving picture theaters in the city, and the calling off of all public gatherings and social affairs.

CANADA

Hospital News.—The provincial government of Manitoba has been approached by the trustees of the Winnipeg General Hospital for a grant of $50,000 for an annex to that institution for nervous and temporarily insane patients.——Plans for a new hospital at Fort McMurray, Alberta, have been prepared. It will be built by the Catholic mission.——In order to provide necessary accommodation for returned soldiers it has been decided to build a military hospital in connection with the Vancouver General Hospital. At the annual meeting of that institution recently, reports were submitted, and it was found that it cost $2.01 per patient per day. The deficit amounted to $55,301.70. More than 8,000 patients were admitted to the hospital in 1916. The deaths numbered 464. In the laboratories work has commenced on the colloidal gold chlorid test.

Personal.—Lieut.-Col. Alexander Primrose, Toronto, has been ordered to return to England for hospital work.——Major W. Harley Smith, Toronto, who has been on the staff of the Ontario Military Hospital, Orpington, England, has been ordered to France.——Dr. William H. Ellis of the University of Toronto has been given the degree of LL.D. by McGill University.——Dr. Thomas Jean Bourque, Richibucto, N. B., has been appointed a member of the Canadian Senate.——Dr. Arthur G. Price, Cowichan Station, B. C., has been appointed medical officer of health of Victoria, B. C., in succession to Dr. George A. B. Hall, who is on active service.——Lieut.-Col. George E. Armstrong, Montreal, has relinquished his temporary commission in the Canadian Army Medical Corps.——Lieut.-Col. Hugh Munroe, Saskatoon, Sask., officer in command No. 8 Canadian Stationary Hospital, has been given the command of the Canadian Military Hospital at Hastings, England.——Dr. Charles A. Temple, Toronto, has been transferred from Shorncliffe Hospital to Brighton, England.——Major Henry E. Kendall, Halifax, N. S., C. A. M. C., has been appointed to the command of No. 9 Stationary Hospital in succession to the late Lieutenant-Colonel McLeod.——Lieut.-Col. George MacDonald, M.D., Calgary, Alta., has been appointed to the command of Military District No. 13, Canada.——Capt. Charles A. Publow, C. A. M. C., Picton, Ont., has been appointed adjutant at Bramshott Military Hospital, England.——Capt. Robert M. Shaw, Sault Ste. Marie, Ont., and M. K. McIvor, C. A. M. C., Winnipeg, Man., are reported wounded.

GENERAL

Gastro-Enterologists to Meet.—The twentieth annual meeting of the American Gastro-Enterological Association will be held at the Hotel Traymore, Atlantic City, N. J., April 30 and May 1.

Cuban Women Organize Red Cross.—Under the leadership of Mme. Mariana Seva de Menocal, wife of the president of Cuba, society women in Havana, April 15, organized an active auxiliary for the American Red Cross.

Medicine and the Law.—At the annual convention of the Joint Association of Surgeons of the Illinois Central and Yazoo and Mississippi Valley Railroads, held in New Orleans, March 30, Hon. Hunter C. Leake, New Orleans, delivered an address on "Medicine Within the Law." Dr. William H. Wilder, district surgeon of the Illinois Central, at Birmingham, Ala., delivered an interesting address on "Preparedness in Industrial Medicine."

Internal Revenue Department Revokes Harrison Law Ruling.—Under date of April 10, the commissioner of internal revenue issued the following rule:

> The ruling contained in T. D. 2194, holding synthetic substitutes subject to the provisions of the Act of Dec. 17, 1914, and requiring manufacturers of, dealers in, and physicians prescribing any such substitutes, as therein defined, to register and otherwise conform to the Harrison Narcotic Law and the regulations issued thereunder, is hereby revoked, to take effect this date.

Bequests and Donations.—The following bequests and donations have recently been announced:

> Jewish Hospital, Philadelphia, $1,000, by the will of Samuel Keyser.
>
> Endowment Fund Association of the University of Cincinnati, the residuary estate of Mrs. Anna Hunt Heady, Glen Dale, estimated at $100,000, the income of which is to be used to endow a chair in the medical department of the university in the name of the husband of the testatrix, Dr. James F. Heady.
>
> The Chicago Pavilion of the Jewish Tuberculosis Relief Society, Denver, $5,000, the proceeds of two plays at the Empire Theater, Chicago, April 11 and 12.
>
> Northwestern Antituberculosis League of Pennsylvania, $1,000, by the will of Mrs. Joseph Seep, to be used in connection with permanent improvements at the Grand View Sanatorium, Oil City.
>
> A New York hospital, for the establishment of a department of urology, nearly $4,000,000; Johns Hopkins Hospital, Baltimore, $300,000 to build the James Buchanan Brady Urological Institute, by the will of James Buchanan Brady.
>
> New England Deaconess Hospital, Boston, $2,500; Worcester Memorial Home for the Blind, Worcester Home for Aged Men, and Worcester Home for Aged Women, each $1,000, by the will of Mrs. Lizzie J. Trowbridge, Northbridge.
>
> American Ambulance, Paris, about $40,000 as the receipts of the presentation of French war pictures at the Auditorium, Chicago, in April.

Public Health Service Activities.—Surg. George B. Young will deliver a course of lectures before the Women's Branch of the Navy League, Norfolk, Va.——Surg. Benjamin S. Warren, Washington, D. C., has been detailed as medical officer for the United States Employees Compensation Commission to cooperate in the organizing and operation of the work.——Prof. Earle B. Phelps, Washington, D. C., has been directed to proceed to Tuscaloosa, Ala., for consultation with the local health authorities regarding the establishment of a municipal pasteurization plant.——Assistant Epidemiologist John C. Geiger, Huntington, W. Va., has been directed to proceed to such places as may be necessary in the southern states to make a malarial survey and to secure epidemiologic data relative to the disease.——Asst. Surg.-Gen. William Colby Rucker, Washington, D. C., delivered an address on the Public Health Service before the graduating class of Johns Hopkins University, Buffalo, March 28.——Surg. Mark

J. White, St. Louis, delivered an address on "Rural Sanitation," before the Illinois Public Health and Welfare Association at Springfield, April 12 to 13, and delivered a series of lectures on "Public Health" at the Conference of Health Officers, Rosedale, Kan., during the week beginning April 23.——P. A. Surg. John P. Leake, New Orleans, has been directed to proceed to Saluda, Va., to make an epidemiologic study of the prevalence of cerebrospinal meningitis.

FOREIGN

A New Journal on Orthopedic Surgery.—A new medical journal has been founded in Italy, with the title *Chirurgia degli Organi di Movimento*. The editor in chief is Professor Putti of the Rizzoli Institute for Orthopedics, connected with the University of Bologna. He is also incumbent of the university chair of orthopedics.

Marie Appointed to Dejerine's Chair.—P. Marie, professor of pathologic anatomy at the University of Paris, has been appointed to the chair of diseases of the nervous system, to succeed the late Professor Dejerine. Letulle, hitherto professor of the history of medicine, has been given the chair of pathologic anatomy.

Infantile Paralysis in Scandinavia.—Many cases of infantile paralysis are being reported from outlying districts in Sweden, Norway and Denmark. The naval schoolship at Copenhagen is said to have been vacated, April 11, on account of an outbreak of disease among the recruits. There were eleven cases of the disease on the ship, with three deaths, including one lieutenant in the navy.

Golgi Reaches Age Limit.—With the close of this term Italy loses from her teaching force, on account of the age limit, three well known professors, C. Golgi, professor of general pathology and histology at the University of Pavia, who has contributed so much to our knowledge of the nerve cell; G. F. Novara, professor of clinical surgery at the University of Genoa, and G. Roster, professor of hygiene at the University of Florence.

Deaths in the Profession Abroad.—D. Vitali, formerly professor of pharmaceutic chemistry at the University of Bologna, and author of over 200 works on pharmaceutic and chemical subjects, aged 85. His "Manual of Toxicologic Chemistry" and other books on changes and frauds in chemicals, his "Compend of Inorganic and Organic Chemistry" and others have been translated into other languages.——**L. Penix**, professor of pharmaceutic chemistry and toxicology at the University of Bologna, aged 55.—**A. Corona,** professor of experimental physiology at the University of Parma, aged 65.

LONDON LETTER

London, April 4, 1917.

The War

SURMOUNTING THE DIFFICULTIES OF DRUG SUPPLY DUE TO THE WAR

At the Royal Society of Arts, Mr. F. A. Hocking, pharmacist to the London Hospital, gave an interesting account of how the difficulties of drug supply due to the war had been partly surmounted. The difficulties were comparatively few, but formidable, and became intensified as the blockade of Germany became more stringent. They mainly concerned (1) the supply of raw material, particularly of potash and of bromin, and (2) the supply of synthetic and some other drugs. Potassium was obtained from Germany because Nature has endowed that country with huge deposits of two potassium compounds —kainite and carnallite—which can be exported at such a price as to render all other sources of potashes unremunerative. On the declaration of war, inquiries were instituted to discover other sources of supply, and the Imperial Institute has published the results in a pamphlet entitled "The World's Supply of Potash." Supplies can be obtained by revival of the kelp industry in Scotland and Ireland; but these are temporary, as the cost of production renders competition with the Stassfurt supplies impossible. Hopes are entertained that the discovery of large deposits of potash minerals in Spain may prove a serious competitor to the Germans in the future. The main difficulty now lies chiefly in supplying potash for artificial manures, for the relatively small requirements of medicine and of the arts have been met without great difficulty, but, of course, at a high price. Prior to the war the world's supply of bromin was derived from the United States and from Germany. The producers in these countries entered into arrangements whereby competition was largely eliminated, in consequence of which the Americans kept away from European markets. The blockade left the Americans master of the situation—a fact of which they were not slow to take advantage, for at one time the price of potassium bromid was $6 a pound, as compared with 37 cents before the war. Bromin, however, is now being prepared in France from sea water in large quantities, and at a price which enables it to compete with the American product. Undeserved blame has been heaped on English firms because they did not immediately undertake the production of synthetic drugs. The question has been frequently put, Why do not English firms commence the manufacture of these drugs and capture German trade? In the first place, the resources of British firms are taxed to the utmost in the endeavor to cope with the sudden and enormous demand for British products for the needs of the allied armies and of the civil populations. In the next place, armies of millions of men cannot be raised and at the same time leave a surplus of labor for new commercial enterprises. Moreover, plants and processes which have occupied the enemy years of thought and labor in bringing to their present state of perfection cannot be improvised in a day. For these reasons little was done in the early months of the war. A start, however, was first made in the east end of London with the production of salicylic acid and its compounds, possibly because the raw materials are easily obtainable and because the process of manufacture is relatively simple, and in the early spring of 1915 the London Hospital received 1 hundredweight of British-made sodium salicylate. Acetylsalicylic acid (aspirin) was the next item to be tackled, and although the early attempts were not satisfactory, difficulties have now been surmounted, and more than one manufacturer is turning out tons of this article of the highest degree of purity. Atropin sulphate, originally derived from Central Europe, is now being produced from Egyptian henbane in large quantities by at least two English firms. Other "German" drugs now being produced in this country are: absolute alcohol, lanolin, butylchloral hydrate, paraldehyd, lactic acid, homatropin, phenacetin, saccharin, salol, xeroform, novocain, salvarsan and potassium permanganate. The chemical laboratories and staffs of various university colleges have been pressed into this work.

LUNACY AND THE WAR: DECREASE IN THE NUMBER OF INSANE

The official report for the year 1915 states that, Jan. 1, 1916, the number of notified insane persons under care in England and Wales was 137,188, being less than that recorded, Jan. 1, 1915, by 3,278. This decrease may be contrasted with an increase of 2,411 recorded for the year 1914, and an average annual increase for the ten years ended Dec. 31, 1914, amounting to 2,251. Thus if that average rate had been maintained during 1915, the number under care, Jan. 1, 1916, would have been 142,717, or 5,529 above the actual record. It is noteworthy that this is the first occasion since reliable statistics have been available (since 1859) on which there has been a decrease in the numbers under care as compared with those of the year preceding. Except in 1885, 1886 and 1890, when such increase amounted to 452, 735 and 728, respectively, the numbers have been nearer 2,000 than 1,000, and since 1893 above the former figure, in all but four years, a maximum yearly increase of 3,235 being recorded in 1904. It is natural, therefore, to infer that the diminution bears some relation to exceptional conditions—social and economic—arising from the war. The admissions during the year were 21,173, or 2,055 below the number recorded in 1914, and of these, 17,710 were first admissions, being 547 below the decennial mean. The report suggests that as the decrease coincides with altered conditions arising from the war, an explanation might perhaps be found in a diminution of insanity owing (1) to the withdrawal from civil occupations of a large proportion of the male population; (2) in the great call for employment by both sexes alike, and (3) the increase in material prosperity afforded thereby. On the other hand, it is remarked that the direct and indirect effects of war in disturbing mental balance in those actively engaged in it, and the stress of anxiety and sorrow experienced by those at home are not to be ignored. These and certain other considerations, however, are regarded at this juncture as too speculative to be given much weight.

AMERICAN PHYSICIANS AT LONDON HOSPITAL

Reporting to the quarterly court of governors of the London Hospital, the committee of management stated that as the War Office had had to call up so many of their house physicians and house surgeons, they considered that the hospital was fortunate in having obtained the services of six

highly qualified American physicians. These men were specially selected for the hospital by Prof. Foster Kennedy of New York, and two had worked their passage over as ship stokers. Since the last court they had also engaged six women physicians, who were assisting efficiently.

The Lowest Infant Death Rate on Record

The registrar-general's annual summary of the marriages, births and deaths in England and Wales states that last year infant mortality was 91 per thousand registered births, being the lowest annual rate on record. In 1916, 785,454 births and 508,227 deaths were registered in England and Wales. The natural increase of population by excess of births over deaths was therefore 277,227, the average annual increase in the preceding five years having been 346,119. The number of persons married during the year was 558,454. Calculated on an estimated total population of 35,250,000, the marriage rate in England and Wales during 1916 was 15.4 per thousand, the birth rate 21.6, and the death rate 14.0.

The Unqualified Treatment of Venereal Diseases Penalized

The government has introduced a bill to prevent the treatment of venereal diseases otherwise than by duly qualified physicians. In moving the second reading, Lord Rhondda, president of the Local Government Board, said that the bill was based mainly on the recommendations of the royal commission, from whose report it appeared that 10 per cent. of the population was affected. The urgency of dealing with the diseases was great at any time, but it was far greater now, owing to the war, because the experiences of several centuries showed that after every great war there was a large increase of these diseases. The bill provided that if any person not a qualified physician treated the diseases or supplied remedies he should be liable on conviction on indictment to imprisonment, with or without hard labor, for a term not exceeding two years, or on summary conviction to a fine not exceeding $500, or imprisonment for a term not exceeding six months, with or without hard labor. Schemes for the treatment of these diseases by county councils and county borough councils had been submitted for a district covering a population in England and Wales of 23½ millions out of a total population of approximately 36 millions. Of these, schemes covering a population of 16 millions had been approved, so that in nearly half the country already there was provision made for free diagnosis and free treatment by qualified persons, and the practical difficulties which the commission had in mind had been removed. No doubt the bill would press a little hard on pharmacists, but he believed that as a whole they would offer no opposition. It would, no doubt, interfere to some extent with the livelihood of herbalists, but after receiving a deputation on the subject he saw no reason to change his view that they ought to stand firmly for the suppression of all unqualified persons.

PARIS LETTER

PARIS, March 29, 1917.

"Technical Communications" of the Military Health Service

Some time ago the undersecretary of the military health service addressed to the sanitary formations so-called "technical communications" dealing with various subjects of medicine and surgery. These communications were intended to bring to the attention of the military service: (1) the scientific data or therapeutic procedures on which experience has thrown some light; (2) the theories susceptible of practical application, formulated by the learned societies with which the undersecretary of state has been in close communication and collaboration, or the periodical conferences of specialists held by them on their own initiative.

Vaccination Shock and Its Treatment

Under the name of "choc vaccinal," Méry and Hallé have described a syndrome which is sometimes produced by antityphoid and antiparatyphoid vaccination. The onset of this condition is sudden and severe, consisting of a distinct chill, marked prostration and a considerable elevation of temperature. The symptoms may be divided into two distinct groups, occurring in periods. The first group of symptoms embraces the gastro-intestinal manifestations (vomiting, sometimes intractable, diarrhea, often severe, and particularly fetid and watery) and always extreme asthenia with circulatory collapse (cyanosis, deafening of the heart sounds, fetal rhythm, weak radial pulse, sometimes imperceptible, hypotension, and mental torpor not unlike the meningeal state), to which are frequently added renal symptoms (anuria, scanty urine, and urine highly colored, rich in solids and even containing albumin) and sometimes incontinence of bowel and bladder. In exceptional cases there are symptoms of involvement of the liver and spleen. The symptoms of the second period often are not clear and may be inconstant, if treatment of the case is instituted early. They consist of hypothermia, a persistence of the circulatory collapse phenomena and sometimes renal symptoms, especially anuria.

Méry and Hallé advise that this syndrome of symptoms be treated thus: 1. Combat the asthenia and the circulatory collapse phenomena by means of epinephrin, giving during the first twenty-four hours a dose of from 0.001 mg. to 0.002 mg. either by mouth or, and preferably so, subcutaneously. If this route is chosen, the drug is dissolved in physiologic sodium chlorid solution (from 10 to 15 c.c. of solution) so as to avoid painful reaction. Whichever route is chosen, the daily dose, that is, for the twenty-four hours, should be divided so that each dose does not exceed 0.0005 mg. On the following day the daily dose of epinephrin, which should not exceed 1 mg., will be given in 0.25 mg. (0.00025 gm.) doses. One employs eventually in the same manner injections of camphorated oil. 2. Combat the anuria and the other renal phenomena by the injection of an isotonic glucose solution in dosage of from 200 to 300 c.c., repeated twice daily. In addition to such medication, during the period of shock and the days which follow, provided the condition of the stomach permits, the diet must be regulated, giving first sugar solution and then following with a milk diet.

In order to prevent the occurrence of this vaccination shock, Méry and Hallé recommend (1) to take all the necessary precautions to avoid chilling of the patient before and after the injection; (2) to place the patient in the sitting posture so as to avoid syncope; (3) to insist on quiet and rest in bed as soon as possible after the injection; (4) to place the patient on a strict diet the day before the injection is given, and (5) to confine the patient to the hospital the evening and night following each vaccination, and especially emotional subjects, neuropaths, the emphysematous and all those who need to be kept under surveillance.

Inconvenience of Repeated Surgical Intervention in the Case of Lesions of Peripheral Nerves

The Paris Neurologic Society, conforming to its established custom of cooperating with the office of the undersecretary of state of the military health service, has called the attention of Justin Godart to the inconvenience of repeated surgical interventions in the cases of lesions of peripheral nerves. In several cases in which they have done a suture of the nerve for complete or incomplete section, they have reoperated because of the painful phenomena which usually accompany the regeneration of nerve fibers. When one severs and sutures again the injured nerve, in spite of manifest signs of restoration of motor and sensory function, it is possible that paralysis in course of regression may again become a complete paralysis, while, for certain lesions of nerves, the question of a second intervention may sometimes be considered. This is not the case when signs of nerve regeneration are present. Therefore, the Neurologic Society insists on the following: 1. Tardy intervention should not be practiced unless a complete preliminary examination has been made in a neurologic center. 2. A second intervention should never be made without a complete study of the clinical history of the case from its very beginning, a review of the protocol of the first operation, and of the entire series of clinical examinations, as well as the electrical reactions.

Use of Cartilage Grafts in Wounds of the Eye

Dr. Magitot reported two cases of a lacerating wound of the eye caused by a projectile. In spite of the inevitable enucleation of the débris it was possible to make a mobile stump, thus permitting of the satisfactory use of a prosthesis. In one of the cases operation was rendered exceedingly complex by the laceration of the inferior eyelid, which Magitot was obliged to repair piece by piece. The mobile stump was made with the aid of a cartilage graft. Histologically this tissue is insusceptible to attack by micro-organisms, and its consistence makes it possible to suture to it the two lateral eyeball muscles, thus providing for lateral movement. This procedure is applicable in old as well as recent cases. The muscles were repaired in such a way that they could be recovered later, if necessary. When many months after the wounding all of the inflammatory phenomena had disappeared, nothing interfered with the removal of the dead cartilage and its replacement by a piece of living cartilage taken from the patient himself. One is assured of the survival of the graft. One of the patients had to be subjected to a second operation.

Marriages

WILLIAM SHARPE CRANFORD, M.D., Meridian, Miss., to Miss Maude E. Parish of Memphis, Tenn., at New Orleans, February 18.

EDWIN BARRETT WILSON, M.D., New York, to Miss Bettie Turnbull of Carbondale, Pa., at Brooklyn, January 2.

WILLIAM BENJAMIN HENDERSON, M.D., to Miss Bertha Mae Williamson, both of Hot Springs, Ark., April 14.

ROBERT SAMUEL TOPPING, M.D., Newark, N. J., to Miss Zoe Gayoso Barrow of New Orleans, April 17.

OTTO B. KIEHL, M.D., Pittsburgh, Kan., to Miss Georgia Lee Howard of Parsons, Kan., March 30.

LEWIS WEBB HILL, M.D., Boston, to Miss Pauline Wyman Dexter of Brookline, Mass., recently.

JAMES EDWARD THIELL, M.D., Belvidere, Ill., to Miss Nina Pitz of Manitowoc, Wis., April 11.

ROBERT B. TYLER, M.D., to Mrs. Rosa Olson, both of Joplin, Mo., at Neosho, Mo., March 31.

Deaths

Elmer Frederick Clapp, M.D., Iowa City; Bellevue Hospital Medical College, 1870; aged 74; a member of the Iowa State Medical Society; professor of anatomy in his alma mater from 1871 to 1889; secretary of the faculty from 1872 to 1879; surgeon to Mercy Hospital, Iowa City, and president of the medical board from 1873 to 1889; surgeon of the state militia and later division surgeon; a veteran of the Civil War; president of the Board of Trade of Iowa City for several years; local surgeon for the Rock Island and Burlington System; once vice president of the Iowa State Medical Society and of the Eastern District Medical Society of Iowa; secretary of the Johnson County (Iowa) Medical Society from 1873 to 1877, and president of the Iowa City Medical Society from 1877 to 1880; died in the Morris (Ill.) Hospital, April 12, from cardiac asthma.

Francis Dowling, M.D., Cincinnati; University of Munich, Bavaria, 1873; aged 68; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; for many years examining surgeon for the United States Marine Corps and Civil Service Commission, Cincinnati; an associate member of the French Society of Hygiene; who was given the Cross of the Legion of Honor four years ago, in recognition of his services in the field of French medical literature; died in the Cincinnati General Hospital, April 12, from cerebral hemorrhage.

George Stockton, M.D., Columbus, Ohio; Bellevue Hospital Medical College, 1875; aged 62; a Fellow of the American Medical Association, and a member of the American Medico-Psychological Association; professor of mental diseases in the Ohio Medical University, Columbus, since 1903; a member of the staff of the Columbus State Hospital for thirty years, and for eight years of that time superintendent of the institution; a member of the medical staff of the Rodebaugh Sanatorium, Columbus; died in that institution, January 9, from uremia.

Phillip Richard Taylor, M.D., Louisville, Ky.; Hospital College of Medicine, Louisville, 1887; aged 53; a Fellow of the American Medical Association; at one time dean of the faculty and professor of materia medica and therapeutics, and otology, rhinology and laryngology, and clinical professor of ophthalmology in his alma mater; a specialist on diseases of the eye, ear, nose and throat; died in his office in Louisville, April 8, from the effects of chloroform, self-administered, it is believed, with suicidal intent.

Milton D. Schumaker, M.D., Tarentum, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1888; aged 50; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania and president of the Allegheny County Medical Society; a specialist on diseases of the ear, nose and throat; who went to Albuquerque, N. M., in October last, in search of health; died in that city, April 11.

Robert Dalby Morgan, M.D., Slatington, Pa.; Maryland Medical College, Baltimore, 1910; aged 32; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; local surgeon of the Lehigh Valley System and health officer of Slatington; fell in the lobby of the Slatington Opera House, April 11, fracturing his skull, and died at his home, twenty minutes later.

Walter Wake McKenzie, M.D., Hamilton, Ont.; University of Toronto, Ont., 1914; aged 26; a member of the staff of the Hamilton Asylum for the Insane; a member of the Canadian Medical Association and an officer of the Canadian Army Medical Corps; on duty in the Shornecliffe Military Hospital, Shornecliffe, England; died in that institution, February 20, from cerebrospinal meningitis.

Thomas Alexander MacNicholl, M.D., New York; Bellevue Hospital Medical College, 1892; aged 49; a Fellow of the American Medical Association; secretary of the New York State Medical Alliance and vice president of the American Association for the Study of Alcohol and Narcotics; well known as a gynecologist; died at his home in Brooklyn, April 9, from heart disease.

Adam R. Ray, M.D., Brownlee, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 56; formerly a Fellow of the American Medical Association; local surgeon at Fairfield, Neb., for the Chicago, Burlington and Quincy, and St. Joseph and Grand Island railroads, and medical director of the Sons and Daughters of Protection; died in the Lincoln Sanitarium, March 27.

William Henry Winslow, M.D., Boston; University of Pennsylvania, Philadelphia, 1874; Hahnemann Medical College, Philadelphia, 1877; aged 76; an officer in the U. S. Navy during the Civil War; a specialist on diseases of the eye; author of many historical novels concerning the Civil War; died at his home in Roxbury, Boston, April 8, from pneumonia.

William Cyrus McGrath, M.D., Eagle Grove, Iowa; Northwestern University Medical School, Chicago, 1891; aged 54; a Fellow of the American Medical Association; district surgeon for the Northwestern System, and vice president of the American Association of Railway Surgeons; surgeon to the Eagle Grove Hospital; died in that institution, April 5, from pneumonia.

Robert Vernon Palmer, M.D., Livingston Heights, Va.; College of Physicians and Surgeons, Baltimore, 1894; aged 52; a member of the Medical Society of Virginia; who had been under treatment in the Georgetown University Hospital, Washington, D. C.; is said to have committed suicide, April 5, by hanging himself to the bedpost by a rope made of towels.

Joseph P. Pyle, M.D., Wilmington, Del.; University of Pennsylvania, Philadelphia, 1883; aged 57; a Fellow of the American Medical Association; founder of the Physicians' and Surgeons' Hospital, Wilmington; for several years a member of the board of water commissioners; died at his home, April 7, from diabetes.

Dayton Joseph Long, M.D., Piedmont, W. Va.; College of Physicians and Surgeons, Baltimore, 1897; aged 47; a member of the West Virginia State Medical Association; died in the Western Maryland Hospital, Cumberland, April 4, from injuries received in an automobile accident near Barton, March 24.

Charles Henry Blickensderfer, M.D., Shawnee, Okla.; University of Tennessee, Nashville, 1894; aged 50; a Fellow of the American Medical Association; local surgeon of the Rock Island System; was instantly killed, April 10, in a collision between automobiles in Shawnee.

Paul Bliss Noble, M.D., San Francisco; Cooper Medical College, San Francisco, 1900; aged 39; was found dead in his home, in Los Altos, April 10, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent.

John William Lindley, M.D., Natoma, Kan.; University Medical College, Kansas City, Mo., 1910; aged 36; a member of the Kansas Medical Society; was thrown from his automobile in an accident, March 26, and died a short time after from his injuries.

Caroline Root Conkey, M.D., Waterbury, Conn.; Women's Medical College of the New York Infirmary, New York, 1881; aged 72; a member of the Connecticut State Medical Society; died at her home, February 24, from acute parenchymatous nephritis.

Charles Bostic McDaniel, M.D., Rutherfordton, N. C., North Carolina Medical College, Charlotte, 1913; aged 27; a member of the Medical Society of the State of North Carolina; died at the home of his sister, in Rutherfordton, April 10.

Richard Paul Williams, M.D., Farmingdale, N. Y.; Long Island College Hospital, Brooklyn, 1908; aged 31; a Fellow of the American Medical Association; assistant attending surgeon to Mercy Hospital, Nassau; died at his home, April 14.

Francis H. Schoonmaker, M.D., Arlington, S. D.; Northwestern University Medical School, 1887; aged 69; a member of the South Dakota State Medical Association; died at his home, about April 12, from disease of the heart and kidneys.

Dana F. Bothwell, M.D., Pardeeville, Wis.; Ensworth Medical College, St. Joseph, Mo., 1892; aged 50; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, about April 8.

Bela Philander Scoville, M.D., Constantine, Mich.; University of Michigan, Ann Arbor, 1868; aged 74; formerly a Fellow of the American Medical Association; died at his home, April 7, from injuries received by being struck by an automobile.

Irvin J. Sampson, M.D., Mellette, S. D.; Baltimore Medical College, 1898; aged 45; a Fellow of the American Medical Association; while making a professional call at night, March 31, was drowned while attempting to ford a flooded creek.

Joseph Ellison Tucker, M.D., Lexington, Mo.; Missouri Medical College, St. Louis, 1881; Jefferson Medical College, 1889; aged 62; formerly a member of the Missouri State Medical Association; died April 8, after a surgical operation.

John Cassidy, M.D., South Bend, Ind.; Rush Medical College, 1868; aged 70; for nearly half a century a practitioner of South Bend; at one time a member of the board of school trustees; died at his home, April 5, from senile debility.

Lewis Washington Moyer, M.D., East Mauch Chunk, Pa.; University of Maryland, Baltimore, 1887; aged 51; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died April 12.

Galen Rood, M.D., Stevens Point, Wis.; Medical College of Ohio, Cincinnati, 1856; aged 87; formerly a Fellow of the American Medical Association; a pioneer practitioner of northern Wisconsin; died at his home, April 4.

James E. Clawson, M.D., Philadelphia; University of Maryland, Baltimore, 1855; aged 88; a member of the Medical Society of the State of Pennsylvania, and the Medical Club of Philadelphia; died at his home, April 13.

John Lysander White, M.D., Sacramento, Calif.; University of California, San Francisco, 1901; aged 42; a Fellow of the American Medical Association; was killed in an automobile accident in Sacramento, March 31.

Brainard W. Hines, M.D., Pilot, Va., formerly of Walcot, Va.; Winchester (Va.) Medical College, 1861; aged 82; a practitioner of Montgomery County for more than half a century; died at his home, April 6.

John Logan Thomas, M.D., Topeka, Kan.; John A. Creighton Medical College, Omaha, 1915; aged 32; a member of the staff of the Santa Fe Hospital, Topeka; died at Bassett, Neb., April 4, from pneumonia.

Reuben E. Buckmaster, M.D., New Ulysses, Kan.; Kansas Medical College, Topeka, 1894; aged 48; probate judge of Grant County, Kan.; died at the home of his sister in Dodge City, Kan., April 11.

Eleazer E. Rulison, M.D., Amsterdam, N. Y.; Albany (N. Y.) Medical College, 1881; a member of the Medical Society of the State of New York; died at his home, April 2, from heart disease.

Noel Bertram Ford, M.D., Springfield, Ill.; Meharry Medical College, Nashville, Tenn., 1906; aged 38; a colored practitioner; died in St. John's Hospital, Springfield, March 10, from pneumonia.

Lemuel M. Line, M.D., Columbus, Mont.; College of Physicians and Surgeons, Baltimore, 1884; aged 55; formerly a member of the Medical Association of Montana; died at his home, April 6.

Clyde Ammon Peters, M.D., Bloomsburg, Pa.; Jefferson Medical College, 1915; aged 23; died at the home of his father in Bloomsburg, March 8, from nervous breakdown.

Sumner Hale Hilliard, M.D., Mount Dora, Fla.; Hahnemann Medical College, Chicago, 1891; aged 58; formerly a practitioner of Warren, Ill.; died at his home, March 29.

Wilfred Newell Emery, M.D., Waltham, Mass.; Boston University School of Medicine, 1891; aged 50; a specialist on diseases of the nose and throat; died at his home, April 6.

John Orlando Reed, M.D., Crafton, Pa.; Jefferson Medical College, 1893; aged 51; a Fellow of the American Medical Association; died at his home, April 5, from pneumonia.

James A. Henderson, M.D., Westmouth, Quebec; McGill University, Montreal, 1893; aged 48; assistant professor of anatomy in his alma mater; died at his home, January 2.

Waldo Hodges Stone, M.D., Attleboro, Mass.; formerly of Providence, R. I.; Boston University, School of Medicine, 1882; aged 61; died in North Rehoboth, Mass., April 6.

C. E. Frost, M.D., Duncan, Okla.; Missouri Medical College, St. Louis, 1878; aged 63; a Fellow of the American Medical Association; died recently at his home.

John Franklin Flint, M.D., Erie, Pa.; University of Michigan, Homeopathic Medical College, Ann Arbor, 1881; aged 74; died at his home, April 5, from influenza.

J. W. McCulloch, M.D., Argyle, Texas; Washington University, St. Louis, 1865; aged 78; died at his home, February 17, from septicemia following a carbuncle.

W. D. Wilson, Beebe, Ark. (license, Eclectic State Medical Board of Arkansas, 1883); aged 74; a merchant of Beebe for sixteen years; died at his home, March 1.

George Edward Friend, M.D., Stetson, Me.; Dartmouth Medical School, Hanover, N. H., 1895; aged 61; died at his home, January 29, from acute gastritis.

Ovila Mallet, M.D., Troy, N. Y.; Laval University, Montreal, 1880; aged 58; a Fellow of the American Medical Association; died at his home, March 25.

Edwin Henry Peck, M.D., Cleveland; Homeopathic Hospital College, Cleveland, 1867; aged 76; died in the Mount Sinai Hospital, Cleveland, April 8.

Duncan Hyndman, M.D., Norvell, Mich.; Western Reserve University, Cleveland, 1869; aged 71; died in Jackson, Mich., January 31, from paralysis agitans.

Martha E. Keller, M.D., Indianapolis; Hahnemann Medical College, Chicago, 1884; was burned to death in her apartment in Indianapolis, April 19.

James Locke Bowles, M.D., South Charleston, W. Va.; North Carolina Medical College, 1914; died at his home, January 14, from heart disease.

Clifford Vaiden McConnico, M.D., San Bernardino, Calif.; University of Pennsylvania, Philadelphia, 1902; aged 38; died at his home, about March 30.

Henry Elwood Retan, M.D., Phoenix, Ariz.; Detroit College of Medicine and Surgery, 1909; formerly of Sturgis, Mich.; died recently in Phoenix.

Wilbur F. Sadler, M.D., Montgomery, Ala.; College of Physicians and Surgeons, Baltimore, 1881; aged 69; died at his home, March 26.

Albert C. Phillips, M.D., Elk Point, S. D.; Sioux City, Iowa, College of Medicine, 1897; aged 43; died at his home, March 31, from pneumonia.

Ephraim A. Knodle, M.D., Arthur, Ill.; Missouri Medical College, St. Louis, 1893; aged 67; was found dead in his room in Arthur, April 3.

Otto B. Poppe, M.D., Chicago; Hahnemann Medical College, Chicago, 1870; aged 75; died at his home, April 15, from spinal sclerosis.

Theodore Louis Adams, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1880; aged 59; died at his home, April 12.

John C. Ducker, M.D., Alma Center, Wis.; Lincoln Memorial University, Knoxville, Tenn., 1894; aged 55; died at his home, April 7.

Francis Eugene Harpel, M.D., Danville, Pa.; Hahnemann Medical College, Philadelphia, 1871; aged 72; died at his home, April 3.

Ansel LeRoy Thomas, M.D., Bardstown, Ky.; University of Louisville, Ky., 1908; aged 33; died at his home, March 25, from nephritis.

William Gower Branscombe, M.D., New Bedford, Mass.; New York University, New York, 1867; died at his home, April 10.

Michael Lowenrosen, M.D., Chicago; Harvey Medical College, Chicago, 1897; died at his home, March 29, from pneumonia.

Emil Jeserich, Kansas City, Mo. (license, Missouri, 1873); aged 80; a practitioner since 1860; died at his home, March 30.

Dan Osro King, M.D., Auburn, R. I., Medical School of Maine, Brunswick, 1875; aged 66; died at his home, recently.

Correspondence

"PEPSODENT"

To the Editor:—Of the making of dentifrices there appears to be no end. One of the latest of the patented products "to end the plaque" and "to save the teeth" is called "Pepsodent." This tooth paste, which is said to do "what was heretofore impossible," is now being widely advertised as an "efficient mucin digestant." Its sponsors claim that "Pepsodent," when applied to the teeth as a dentifrice, attacks the mucin plaques which are "the source of most tooth troubles," and that "*Pepsodent attacks this plaque with pepsin.*" The individual tubes containing this paste, as it is put on the market, are labeled: "*Pepsodent; proteolytic tooth paste (dental mucin digestant).*" Advertisements in dental journals assert that "the whole object of Pepsodent is to *dissolve* the film" (mucin plaque).

During the course of the research we have been conducting under the auspices of the First District Dental Society of the State of New York, Miss Franke and I took occasion, recently, to inquire into the validity of these plausible claims in behalf of "Pepsodent." We have found that none of these digestive claims is warranted in any degree.

"Pepsodent" is devoid of the digestive power on dental mucin plaques that is commercially ascribed to it. Mucin plaques cannot be digested from teeth by any advertised use of "Pepsodent." There is about as much common sense in the proposed application of "Pepsodent" for this purpose as there is in the oral administration of a few grains of lactopeptin to improve impaired tryptic digestion in the intestine.

The details of the biochemical findings that enforce these conclusions will be published in the next issue of the *Journal of the Allied Dental Societies.*

Our results make it evident that "Pepsodent" is put on the market in utter ignorance of the dental and biochemical principles involved, or with intent to mislead the multitude that may usually be deceived by plausible advertisement.

William J. Gies, New York.
Department of Biologic Chemistry, Columbia University, College of Physicians and Surgeons.

THE THOMPSON MALTED FOOD STOCK PLAN

To the Editor:—I want to call your attention to the efforts being made by the Thompson Malted Food Company in interesting the profession in the sale of their stock here. An agent of this company recently showed me a check from one of our leading physicians for $150, payable to this company for an interest in the business, as an inducement. I cannot see that this is any different morally than for doctors to be interested in certain dairies, or any other business, in which they and their patients have common dealings in the practice of their professions.

They offered to sell me stock, and I told them that under no conditions would I be financially interested in any surgical instrument house, drug store, milk concern or food company, all of which were necessary to the sick and to me in the practice of my profession.

The moral is that if a doctor becomes financially interested in a food factory, he will prescribe the product of that factory in preference to others, on the assumption that it is just as good as others, though it may be inferior. He will resolve any doubt that may exist, in his own interest, and he will be tempted to prescribe a certain food, as he would a certain drug or appliance, regardless of cost to the patient and whether necessary or not.

This agent showed me a list of physicians who were financially interested in this concern. I know of physicians and surgeons who have received commissions from surgical instrument houses for every abdominal belt or elastic stocking prescribed for their patients. Men who will do this would accept a commission from a drug store or food company.

As in "fee splitting," the patient is generally ignorant of the transaction. In the former, as in the latter, the physician would not wish the public to know of the transaction, or of his relation to the business. It is professionally indefensible, and if the profession permits a commercial organization to prescribe its code of morals it corrupts its own ranks and degrades the practice of medicine. It violates the time-honored traditions of the profession which in all times have made the medical profession distinct from other callings in its daily humanitarian services to the sick.

We cannot afford to permit the high aims and purposes of the profession to be abused and debased by the spirit of commercialism, which is common to the ordinary business affairs of life. For the good of the profession and the public, the standard should be exalted, not pulled down.

W. W. Grant, M.D., Denver.

[Note.—The stock-selling scheme of the Thompson's Malted Food Company has been in operation a good many years. In 1911, attempts were made to interest physicians by telling of the glowing prospects that might follow an investment. We have yet to hear of any dividends being paid. The Journal discussed this concern in the Propaganda Department, Oct. 24, 1914, and a reprint of this article will be sent on receipt of a 2 cent stamp. It seems worth while, in view of what Dr. Grant has said, to quote the closing paragraph of the article in question:

"Disregarding the question whether or not this is a stock jobbing scheme or whether the purchase of the stock is a good investment, there is another side to the matter. It must be evident that the public is not getting a square deal when physicians are financially interested in the products they prescribe for, or recommend to, the sick. Whatever the value of the Thompson products, the method of exploitation and the attempts on the part of the company to get physicians financially interested in its ventures are to be deprecated. If laymen of a speculative turn of mind wish to invest in the stock of companies putting out 'bottled energy,' 'blood builders' and 'nerve repairers' that is their business, but it is certainly neither conducive to the scientific practice of medicine nor to the interest of the public for physicians to be financially interested in products of this sort."

—Ed.]

COMPULSORY HEALTH INSURANCE

To the Editor:—Writing on the merits of the present propaganda for compulsory health insurance (The Journal, March 17, 1917, p. 865), Dr. Frederick L. Hoffman, statistician of the Prudential Insurance Company, arrives at the following conclusions:

"Thus, briefly restated, organized labor is not in favor of compulsory health insurance, but opposed to it; organized industry and business interests are not in its favor, but opposed to it; and the organized medical profession is not in its favor, but opposed to it."

If this is the situation, and if this situation is accepted as decisive and final, then what is the use of even talking about compulsory health insurance any further? A proposal to which all interested parties are opposed should have little chance of realization.

Surely the bare fact that a few misguided enthusiasts and fanatics in New York are advocating it would not be responsible for the entire movement.

That a real movement exists can scarcely be denied at present. Two state commissions on social insurance have already reported, and both enthusiastically, in favor of the principles of compulsory health insurance (California and Massachusetts), as any one can ascertain by consulting the published reports, or the extracts printed in the *American Labor Legislation Review* for March, 1917.

Governor Johnson of California and Governor McCall of Massachusetts have freely expressed their enthusiastic support of health insurance. What chance would there be for these two experienced and sagacious statesmen supporting a proposal to which employers, employees and the medical profession are opposed? Only a few days ago, the Ohio legislature passed a bill authorizing the appointment of a commission to study health insurance, and that there is great likelihood of similar commissions being appointed in other states as well Dr. Hoffman will not deny.

The facts cited by Dr. Hoffman in support of his broad assertion are of course correct, but they are one sided, and they do not offer a sufficient basis for the assertion.

1. Organized Labor: Mr. Samuel Gompers' opposition to compulsory insurance is well known, but it is far from being

decisive of the attitude of the membership of the American Federation of Labor.

It may be pertinent to point out that Mr. Gompers is also a very violent opponent of voluntary insurance of workingmen through private insurance companies.

It would not be fair, however, to draw the conclusion therefrom that all organized labor is opposed to life insurance, since industrial life insurance companies boast of over 35,000,000 policies in this country, most of them among wage workers.

Dr. Hoffman also refers to the resolution adopted at the last annual convention of the American Federation of Labor. The resolution was against compulsory insurance and especially against private insurance companies in industrial, social and health insurance.

After all, health insurance is a matter of state and not national legislation, for some time. The action of state federations of labor is perhaps equally important. Several state federations, notably those of Wisconsin, Ohio and Pennsylvania, have endorsed compulsory health insurance. The California federation referred the question to a committee, but the fact that the chairman of the federation, Mr. Murphy, is an advisory member of the Social Insurance Commission which strongly endorsed the compulsory plan, is strong evidence as to where labor stands in California.

The names of two or three individual representatives of organized labor are quoted in opposition to compulsion. May I quote, therefore, in support of compulsory insurance such men as William Green, secretary-treasurer of the United Mine Workers and a vice president of the American Federation of Labor: "I do not share the belief of some men that a compulsory plan of health insurance will be detrimental to the wage workers. I can conceive of no other plan which would be successful." The names of Mr. James H. Maurer, president of the Pennsylvania Federation of Labor, John Mitchell, James Duncan and John Golden, president of the United Textile Workers of America, may also be referred to.

Several large international unions have endorsed compulsory insurance, including the International Typographical Union, the United Textile Workers and the Ladies Garment Workers.

In short, organized labor is *not* opposed to compulsory health insurance, but its opinion is divided, with the advocates of compulsory insurance rapidly gaining as they are studying the subject.

2. The Medical Profession: Quoting Dr. Ira S. Wile's statement that "physicians in general are in favor of the general proposition of health insurance," Dr. Hoffman says, "This assertion is a flat contradiction to the fact that the American Medical Association has adopted no resolution on the subject one way or the other," etc.

We beg to submit that there is no such "flat contradiction" between an observation as to the opinion of "physicians in general" and a lack of formal endorsement of the great national association.

It is again true that physicians are not at all in agreement on the subject, and that in several localities medical organizations have gone on record as opposing health insurance. Some of them, as, for instance, the Medical Economic League of New York, have even adopted contradictory resolutions at different times. But at public meetings for discussion of social insurance, physicians' voices are heard both in support and in opposition to it, to which I can easily testify, having spoken before medical organizations in perhaps a dozen states.

3. Organized Industry: The National Association of Manufacturers had a committee on industrial betterment which *did*, after a careful consideration, clearly endorse compulsory insurance. It now appears that the association only *received* and did not accept this report. But that a growing number of large employers fully endorse the principle is evidenced by organizations of sick benefit funds, and in other ways. At the public hearings in San Francisco, Nov. 20-22, 1916, several of the largest employers came out in favor of compulsory health insurance, as, for instance, Col. H. Weinstock, the "Emporium Department Store" and others.

It is an oversight that in the list of the opponents of compulsory health insurance the strongest of them were not mentioned by Dr. Hoffman. These are the private insurance companies, operating directly and through their state insurance federations. After fighting fraternals for years, they have fallen in love with them in California in order to use them in their fight against health insurance. Here is what the Fresno *Republican* (Mr. Chester Rowell's paper) says of this phase:

> With amusing stupidity the argument contends that social insurance is a fatally bad policy for the people, but it will be all right provided the insurance companies are permitted to get their share of the business. It is the stock companies who are paying for this page, and they are trying to crawl in under the protection of the fraternal companies, which there is no purpose in injuring.

Though exploiting the medical profession for five years under compensation, they have engineered a campaign among medical societies in New York City for which unfortunately many physicians have fallen, so that for several weeks a prominent spokesman of the casualty companies was present and spoke at a large number of meetings. And now the casualty companies applaud Mr. Gompers, whose frank opinion of private insurance companies I have quoted above.

I think it would be well if the motives of this campaign were examined by fraternals, labor and physicians, for it has been repeatedly admitted that this opposition of insurance companies would disappear if they were permitted to come in and make profits.

In a page advertisement in the San Francisco *Chronicle*, January 17, these insurance companies stated that: "The proper economic solution of this problem calls for the retention in the field of all carriers and agencies now in existence. . . . Any plan adopted by this or any other state should retain stock insurance organizations." *There* is the true motive of the most obstinate opposition, often disguised and always misleading.

I. M. RUBINOW, M.D., New York.

Executive Secretary, Committee on Social Insurance, Council on Health and Public Instruction, American Medical Association.

DUTY OF PHYSICIANS IN URGING ECONOMY OF FOODSTUFFS

To the Editor:—There is danger of shortage in the food supply, particularly of wheat foodstuffs. Every effort, therefore, should be made to meet this contingency. Physicians should realize that they can help in this important form of preparedness.

At the present time, the kind of flour which is employed most widely, the patent flour, contains only from 60 to 65 per cent. of the wheat berry. The remainder is utilized mainly for cattle feed.

Flour which is made of 75 per cent. of the wheat berry is only a little darker in color than the patent flour, and the bread made from it is only slightly less white. Its cost is less and its nutritional value is great, as it contains the bran and the embryo, which have particular virtues. From an economic point of view, it would seem desirable to substitute the coarser type of flour for one that is superrefined. In England at the present time, the mills are required to use 76 per cent. of the wheat in making flour.

It requires no comment to indicate what a saving of 10 per cent. in the utilization of the wheat berry would mean in relation to the wheat crop of the United States, which aggregates hundreds of millions of bushels. The main difficulty in accomplishing this change is the education of the public. The millers are quite willing to supply the grade of flour which the public demands. An educational propaganda is needed to inform the people of the urgent necessity of this economy and also to assure them that the alteration in diet would have no deleterious effect on their health. It would seem that such a propaganda could best be undertaken by the 140,000 or more physicians throughout the United States. If they served on their tables bread made from a coarser flour and if they urged its use to their patients, there would be more likelihood of its general adoption than if it were urged

by those whose opinion did not carry the weight of medical authority.

There are a number of other economic dietary measures which could well be urged by the physician, for example, the extended use of rice, more particularly unpolished rice (as is well known, unpolished rice possesses food value which is lacking in the polished variety), and the use of corn cereals, such as hominy, or the use of whole wheat instead of the refined wheat cereals. A personal experience last year showed that even small infants thrive on a cereal composed of two-thirds farina and one-third wheat middlings or germ.

The use of margarin as a substitute for butter would constitute another economy. The sale of skimmed milk, which is now prohibited by the sanitary codes of New York and many other cities, should be encouraged for its use in cooking. These and many other changes of diet could be carried out to advantage, primarily in the households of physicians and in the many institutions with which they are connected. This embraces a large field when we consider that the dietary of thousands of people in various hospitals, homes and asylums throughout the United States is controlled or guided by the opinions of their physicians.

ALFRED F. HESS, M.D., New York.

PRIORITY IN OBSERVATION OF AUSCULTATORY BLOOD PRESSURE DETERMINATION PHENOMENA

To the Editor:—In THE JOURNAL, April 14, 1917, p. 1088, Cooke and Taussig call attention to certain abnormalities in auscultatory phenomena which they preface by stating that "it has doubtless been observed by others, but so far as we know there is no mention of it in the literature." I wish to put on record the fact that in the second edition of my book on "Blood Pressure," prepared in 1915 and printed in September, 1916, casual mention of the occasional absence of the second phase was made on page 97, while on page 320 a chart indicates this phenomenon and specific mention is made of it.

FRANCIS A. FAUGHT, M.D., Philadelphia.

SWINDLER WITH A HARD LUCK STORY

To the Editor:—There is a slick individual hereabouts who works on the sympathy of the doctors by means of a hard luck story.

He is about 25 or 30, dark complexioned, about 5 feet 5, weighs about 130, is thin and anemic, and speaks with a German accent.

After insinuating himself into the inner office he points to a scar on his right cheek and asks if the doctor remembers having operated on him. Then he goes on to say that in an automobile trip he ran short of funds, which never happened to him before, and all he wants is just enough money, $4, to get home, when he will promptly return the money.

He got $4 from me and $9 from another doctor.

The publication of this letter may be the means of having the swindler caught and his dream of easy money not too joyously ended. WALTER A. LANDRY, M.D., Chester, Pa.

The Loss from Alcoholism.—We lose each year in New York as many lives from alcoholism as the devastating epidemic of infectious colds cost the city of New York last winter, as many as all the deaths from the epidemic of poliomyelitis which has raised the whole Eastern coast of this country to a point of panic. And what is to be done, and what has been done to prevent these regiments and more from marching this year, as last, out of New York City to the graveyards? Education coupled with enthusiasm must not be mistaken for fanaticism. Legislation has never changed habits, but may follow a change in popular convictions. To convince the people of this country that the use of alcohol internally is to their disadvantage would seem a simple matter to any one with an elementary understanding of physiology and the action of the anesthetic group of drugs.—Haven Emerson, M.D., "Preparedness for Health."

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTRADURAL INJECTION OF SALVARSAN—BOOKS ON LABORATORY TECHNIC

To the Editor:—1. Where can I obtain the technic employed for the intradural injection of salvarsan or salvarsanized serum? I am familiar with the method used, some months ago described in THE JOURNAL, which consists in the withdrawal of 60 c.c. of blood and the injection of a 40 per cent. solution into the spine one hour after giving salvarsan. I understand that the method is changed both as to the amount given and the location, the injection being directly into the intradural cavity.

2. I should like your advice as to what book to use for laboratory methods. LOUISE H. RICE, New Castle, Ind.

ANSWER.—1. The intradural injection of salvarsan, as described by U. J. Wile ("Treatment of Syphilis of the Nervous System by Intradural Injections [Old Salvarsan]," *Jour. Lab. and Clin. Med.*, November, 1915), is as follows:

The patient is punctured in the usual Quincke position, lying on his left side. After the canal has been successfully entered, the barrel of a 40 c.c. Lüer syringe is attached to the needle by means of rubber tubing about 8 inches long. The cylinder barrel is then lowered below the level of the point of puncture and the fluid is collected until about 10 c.c. have flowed back. The salvarsan is a freshly prepared solution of 1 decigram to 30 c.c. of water. Of this solution an amount corresponding to one-third milligram (approximately 2 minims) is now carefully dropped into the fluid by means of a specially graduated syringe, the assistant in the meantime holding the barrel containing the fluid. The 2 drops are carefully stirred into the cerebrospinal fluid by means of a sterile glass rod. The syringe barrel is then raised above the level of the puncture, and the salvarsanized cerebrospinal fluid is allowed to run back into the canal by gravity. The patient is then placed on his back and the bed elevated from six to twelve hours and the patient kept in bed for forty-eight hours, after which he is permitted to get up. Strict surgical technic is observed throughout the procedure.

2. A selection from the following list should be satisfactory:

Webster, R. W.: Diagnostic Methods, Ed. 5, Philadelphia, P. Blakiston's Sons Company, 1916, $4.50.

McJunkin, F. A.: Hospital Laboratory Methods for Students, Technicians and Clinicians, P. Blakiston's Sons Company, 1916, Philadelphia, $1.25.

Hill, Lewis Webb: Manual of Practical Laboratory Diagnosis, Boston, W. M. Leonard, $1.50.

Williams, B. G. R., and E. G. C., with Introduction by V. C. Vaughan: Laboratory Methods, with Special Reference to Needs of the General Practitioner, St. Louis, C. V. Mosby Company, 1915, $2.50.

Barton, W. M.: Manual of Vital Function Testing Methods and Their Interpretation, Boston, Richard G. Badger, 1916, $1.50.

Sahli: Diagnostic Methods of Examination, Philadelphia, W. B. Saunders Company, $6.50.

Emerson, C. B.: Clinical Diagnosis, Philadelphia, J. B. Lippincott Company, $5.

ORDERS FOR DRUGS FOR PATIENTS IN HOSPITALS DO NOT HAVE TO BEAR REGISTRY NUMBER OF PHYSICIAN

To the Editor:—If I write an order for codein, ⅛ grain, every three hours, on the order book of a hospital, is it necessary to give my registered number and is it necessary that I should make a note of it on my narcotic book? W. J. THORNTON, M.D., Cleveland.

ANSWER.—Article 10, Revised Internal Revenue Regulations No. 35, issued May, 1916, provides that hospitals and similar institutions are required to keep accurate records of all narcotic drugs used therein. No special form of record is required, but it must enable an inspecting officer to estimate quickly the quantity and kind of narcotic drugs used and show the names and addresses of patients to whom administered and indicate the authority for such administration. The initials of the physician giving order for the administration of a narcotic should appear on the chart of the patient, or separate prescriptions should be required by the pharmacist in charge of the drug room before the narcotic leaves his possession.

Narcotic drugs ordered for patients in the hospital should be entered on the history sheet and should bear the initials of the physician ordering the drug.

Drugs so ordered are not required to be registered in the narcotic register of the physician. Article 10 of the revised

regulations provides that a record must be kept of all such drugs dispensed, distributed or administered in his office and all such drugs left with any person or patient to be taken in his absence. An order on a hospital history sheet, however, does not constitute dispensing drugs. It is the same as a prescription. The responsibility for keeping this record and making it acceptable to the inspector lies with the hospital and not with the physician. Physicians are required only to enter in their record drugs which are actually dispensed by themselves.

BERTRAND'S MODIFICATION OF FEHLING'S SOLUTION

To the Editor:—Please let me know where I can find reference to Bertrand's modification of Fehling's solution. Please omit my name in answering.

M. W.

ANSWER.—According to Merck's "Reagenzien-Verzeichnis" (Chemical Tests), 1913, Bertrand's reagent for the estimation of glucose is as follows:

A. Copper Solution: Copper sulphate, 40 gm., to 1 liter of water.

B. Alkaline Solution: Rochelle salt, 200 gm., sodium hydroxid, 150 gm., to 1 liter of water.

C. Iron Solution: Ferric sulphate, 50 gm., sulphuric acid, 200 gm., to 1 liter of water.

D. Permanganate Solution: Potassium permanganate, 5 gm., to 1 liter of water.

By heating the alkaline copper solution (made from Solutions A and B) with glucose, cuprous oxid is formed. This is treated with the ferric sulphate solution, and the ferrous sulphate so formed is titrated with the solution of potassium permanganate. Full details of Bertrand's method, as well as a modification of it may be found in "Physiological Chemistry" by Albert P. Mathews, Edition 2, pages 990-996.

EXTRA-UTERINE PREGNANCY WITH RETENTION OF FETUS

To the Editor:—I have recently had under my care a patient in whom exploratory laparotomy revealed a full term ectopic gestation with death of the fetus and retention for eight months. I am anxious to get some literature on this rare condition, and should be pleased if you would publish references.

EDGAR G. MATHIS, M.D., Austin, Texas.

ANSWER.—

Jardine: Case of Extra-Uterine Pregnancy Beyond Full Time, *Glasgow Med. Jour.*, September, 1916.

Farrer, E. M.: Case of Extra-Uterine Pregnancy with Prolonged Retention (Two Years) of Fetus, *Lancet*, London, Sept. 26, 1914.

Cimeco, A., and Lombardo, M.: Relics of Three Ruptured Tubal Pregnancies of Different Dates Found at Laparotomy, *Semana méd.*, Aug. 7, 1913.

Yeager, F. N.: A Case of Ectopic Gestation at Full Term with Fetus Carried in Abdomen for Thirty-Five Years, THE JOURNAL, Aug. 10, 1912, p. 443.

PARAFFIN

To the Editor:—In the article by Lieut.-Col. A. J. Hull of the Royal Army Medical Corps (JOURNAL A. M. A., Feb. 3, 1917, p. 373) a formula is given in which "Paraffin molle [soft]" and "Paraffin durum [hard]" occur. Does this mean that a mixture of a soft grade of solid paraffin and a harder grade is to be made? Please do not use my name if you answer in THE JOURNAL.

A. B. C., St. Louis.

ANSWER.—"Paraffinum durum" of the British Pharmacopeia corresponds closely to the product sold in this country as paraffin or solid paraffin. On the other hand, "Paraffinum molle" is not soft, solid paraffin, but is essentially the substance which in the U. S. Pharmacopeia is called petrolatum. In other words, Lieut.-Col. Hull's formula directs the use of solid paraffin and ordinary petrolatum.

ABROGATE THE PATENT ON SALVARSAN

To the Editor:—In a recent issue of THE JOURNAL you stated that Mr. Metz had informed you that there was an ample supply of salvarsan and neosalvarsan for immediate use. I am unable to get it at all, whereas two months ago I was using, on an average, fifteen ampules weekly.

My telegrams and letters to Farbwerke-Hoechst Company, 111 Hudson Street, New York, are ignored absolutely. If there is any way I can assist in helping to get the patent off this valuable product, kindly let me know.

E. L. BIGGS, M.D., Los Angeles.

ANSWER.—Yes: Write your congressman and senators and ask them to do their best to get the patent abrogated. And get others, laymen and doctors, to do likewise.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

ARKANSAS, ECLECTIC: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.

ILLINOIS: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.

MASSACHUSETTS: Boston, May 8-10. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

Extension of Time Granted by Ohio Board to Graduates of Chicago College of Medicine and Surgery

The following resolution was adopted by the State Medical Board of Ohio at its meeting held April 3, 1917:

GEORGE H. MATSON, Secretary.

WHEREAS, The attention of the board has been called to the fact that several students, residents of Ohio, have obtained diplomas of graduation from the Chicago College of Medicine and Surgery since June, 1912, and other students residing in Ohio are now in attendance at the same institution, and,

WHEREAS, The board in October, 1911, declared this institution unworthy of recognition and refused to accept for registration diplomas granted subsequent to June, 1912, therefore be it

Resolved, That in order to work no undue hardship on such graduates, or the students now in attendance at the Chicago College of Medicine and Surgery, a diploma of graduation from this institution, granted prior to July, 1917, will be accepted for registration provided the applicant presents with it a certificate of intern service from a hospital approved by the board as competent to teach interns, which certificate must indicate a full and satisfactory service of not less than twelve months; be it further

Resolved, That the secretary of this board be directed to cause the publication of this action in order to prevent any further misunderstandings on the part of those now in attendance at the Chicago College of Medicine and Surgery.

Illinois Reciprocity Report

Dr. C. St. Clair Drake, secretary of the State Board of Health of Illinois, reports that the following candidates were licensed through reciprocity:

FROM JAN. 1 TO MARCH 31, 1916

College	Year Grad.	Reciprocity with
Keokuk Medical College, Coll. of Phys. and Surgs.	(1908)	Arkansas
Kentucky School of Medicine	(1905)	Indiana
University of Louisville	(1914)	Kentucky
Kansas City Hahnemann Medical College	(1910)	Kansas
National University of Arts and Sciences	(1914)	Missouri
John A. Creighton Medical College	(1911)	Nebraska
Marquette University	(1914)	Wisconsin
University of Heidelberg	(1905)	Wisconsin

FROM APRIL 1 TO JUNE 30, 1916

George Washington University	(1905)	U. S. Navy
Hering Medical College	(1913)	Kentucky
Northwestern University	(1911)	N. Dakota
State Coll. of Phys. and Surgs., Indiana	(1907)	Indiana
Keokuk Med. Coll., Coll. of Phys. and Surgs.	(1907)	N. Dakota
University of Louisville	(1912) (1915)	Kentucky
Tulane University	(1914)	Louisiana
Baltimore Medical College	(1907)	Indiana
University of Maryland	(1903)	Maryland
St. Louis University	(1911) (1912) (1913) (1914)	Missouri
John A. Creighton Medical College	(1911)	Nebraska
Ohio State University, College of Medicine	(1915)	Ohio
Vanderbilt University	(1908)	Kentucky
Marquette University	(1915)	Wisconsin
Trinity Medical College	(1901)	Michigan

FROM JULY 1 TO SEPT. 30, 1916

Chicago College of Medicine and Surgery	(1913)	Missouri
Indiana University	(1908)	Indiana
University of Michigan, Homeopathic Medical School	(1909)	Michigan
Beaumont Hospital Medical College	(1900)	Missouri
Cleveland College of Physicians and Surgeons	(1912)	Ohio
Vanderbilt University	(1915)	Kentucky

FROM OCT. 1 TO DEC. 31, 1916

Rush Medical College	(1913)	Missouri
University of Michigan, Homeo. Med. School	(1914)	Michigan

University of Michigan Medical School	(1914)	Michigan
National University of Arts and Sciences	(1915)	Missouri
St. Louis University	(1914)	Missouri
Western Reserve University	(1911)	Ohio

Nebraska November Report.

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the oral, practical and written examination held at Lincoln, Nov. 8-9, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 12, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	80.2
Bennett Medical College		(1915)	76.6
Chicago Coll. of Med. and Surg.	(1914) 75;	(1916)	81.4, 82.4
Harvard University		(1916)	84
John A. Creighton Medical College	(1915) 86;	(1916)	77.9
Lincoln Medical College		(1916)	75, 80.5
University of Nebraska		(1916)	80.1, 82.4

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that the following candidates were licensed through reciprocity from Aug. 28 to Dec. 22, 1916:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1905)	Arkansas
University of Colorado		(1907)	Colorado
Bennett Medical College		(1913, 2)	Illinois
Illinois Medical College		(1900)	Illinois
Northwestern University		(1915)	Illinois
Rush Medical College	(1911)	(1914, 4)	Illinois
University of Illinois	(1911, 2)	(1914)	Illinois
		(1913)	Missouri
University of Louisville	(1910) Virginia;	(1915, 2)	Kentucky
Tulane University of Louisiana		(1913)	Louisiana
Johns Hopkins University (1901) (1902) New York;		(1908)	Maryland
Detroit College of Medicine		(1894)	Iowa
University of Michigan Med. School		(1904)	Alabama
Barnes Medical College		(1897)	Missouri
St. Louis University	(1904) Illinois;	(1913) (1914)	Missouri
Washington Universitiy		(1911)	Illinois
Dartmouth Medical School		(1883)	New Hamp.
New York University		(1898)	Nevada
Cincinnati College of Medicine and Surgery		(1899)	Ohio
Cleveland College of Physicians and Surgeons		(1908)	Ohio
Laura Memorial Woman's Medical College		(1901)	Ohio
Hahnemann Med. Coll. and Hospital of Philadelphia		(1905)	Penna.
Jefferson Med. Coll. of Philadelphia		(1914)	Penna.
Medico-Chirurgical College of Philadelphia		(1897)	Penna.
University of Pennsylvania		(1907)	Penna.
University of Nashville		(1901)	Arkansas
Vanderbilt Universitv		(1914)	Tennessee
Medical College of Virginia		(1915)	Virginia
Marquette University	(1915)	(1916)	Wisconsin
Wisconsin College of Physicians and Surgeons		(1907)	Wisconsin
McGill University		(1906)	Maine

Pennsylvania Reciprocity Report

Mr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports that 6 candidates were licensed through reciprocity from Aug. 29 to Dec. 16, 1916:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University		(1903)	W. Virginia
Johns Hopkins University		(1912)	Maryland
Dartmouth Medical School		(1911)	New Hamp.
Starling-Ohio Medical College		(1908)	Ohio
Western Reserve University		(1911)	Ohio
University of Texas		(1914)	Missouri

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that twelve candidates were licensed on satisfactory credentials at examination held at Sante Fé, Jan. 8-9, 1917. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
University of Colorado		(1912)	1
Hahnemann Medical College and Hospital of Chicago		(1893)	1
Northwestern University		(1916)	1
Rush Medical College		(1916)	1
University of Louisville		(1912)	1
Tulane University of Louisiana		(1907)	1
Baltimore Medical College		(1906)	1
College of Physicians and Surgeons, Baltimore		(1904)	1
Bellevue Hospital Medical College		(1884)	1
McGill University		(1888)	1
National School of Medicine, Mexico	(1899)	(1911)	2

Book Notices

DISEASES OF CHILDREN. By Edwin E. Graham, A.B., M.D., Professor of Diseases of Children in the Jefferson Medical College. Cloth. Price, $6. P. 902, with 93 illustrations. Philadelphia: Lea and Febiger, 1916.

This book was written, its author declares, not from a theoretical but from a practical standpoint. Special effort, he states, has been made to bring the book thoroughly up to date. All of the important matters included in this very important branch of medicine have been treated, especial attention being paid to such subjects as infant mortality, heredity, environment, puberty, fresh air, and diseases of the liver, spleen and thymus glands, all of which, in view of their increasing importance to the practical physician, have been allotted separate chapters.

In a work so comprehensive in scope, it is naturally difficult to present the facts with the clearness and coherence required for complete understanding. The chapter on infant mortality and general statistics contains sixteen pages of statistical information, quoted from numerous authors. These are loosely collected, somewhat difficult to read and more difficult to follow. The author, moreover, has drawn no definite conclusions or deductions from the figures, which should have been done to make them of value. The chapter on heredity is not set forth with sufficient clearness, even for the student who is familiar with the theories and speculations on the subject, while to the uninitiated it cannot fail to be misleading. For example:

> The individual inherits one half of his characters from the two parents, one fourth from the four grandparents, one eighth from the great-grandparents, one sixteenth from the great-great-grandparents, and so on. This is true, not so much in an individual case, as when a large number of individuals are observed in the aggregate.

This is rather a dogmatic statement, and not entirely in accord with modern ideas on the subject.

The photographic reproduction on page 139, illustrating a case of achondroplasia, is more suggestive of a severe case of rickets with infractions than a typical case of achondroplasia. The following describes the mental characters of achondroplasic children:

> Mentally the children are usually rather subnormal, but their mental powers are not markedly defective and they may even be normal. As a rule, however, they develop slowly, are late in talking, and behind the normal child in acquiring knowledge.

These contradictory statements would leave one in doubt as to the mental status of these children if one did not know from previous knowledge that the vast majority of these children are mentally normal. Other incoherent and contradictory statements follow, and the chapter concludes:

> Many of the children die during birth or owing to poor development afterward. Others, as has been stated, may live to extreme old age. They may marry and have children, and their offspring may show either achondroplasia or be absolutely normal.

The arrangement of the presentation of the subject of gastro-intestinal diseases of infancy is rather faulty. In Chapter IX, treating of the child's normal digestion, considerable space is devoted to nutritional disturbances, particularly to the classification of Czerny, Keller and, to a less extent, that of Finkelstein. Then, in Chapter XIII, after a lapse of four chapters, the subject of the diseases of the gastro-intestinal tract is resumed. Having considered dyspepsia according to the classification of Finkelstein on page 206, the author reintroduces the subject on page 267. In the latter instance he treats of fat indigestion, carbohydrate indigestion, protein indigestion, and closes with a discussion of acute gastric indigestion. The confusion is aggravated by a subsequent chapter on acute gastritis and acute gastro-enteritis.

On page 150, discussing the use of alkaline diluents, the author advises lime water or sodium bicarbonate, saying, "It is a matter of clinical experience that the addition of either of these alkalies is of service in infant feeding, and their *beneficial* effect is due to the fact that they tend to retard the action of the rennet ferment in the stomach on the casein." On page 189 the author sees the advantage of Nature's effort to coagulate milk in the stomach by means of rennin and by delaying the passage of food into the duodenum. This forma-

tion of curd should, therefore, be encouraged, he concludes, evidently on second thought, as it probably influences the muscular development of the organ to considerable degree. To say the least, there is in these few pages a rather remarkable change of mind.

The value of the book is further impaired by the carelessness of statement in which the thought is insufficiently worked out. In treating the subject of tetanus in the newly born, the author advises that the antitoxin be administered by lumbar puncture, intravenously or subcutaneously. He does not speak of the difficulties or the dangers attending the injection of the antitoxin into the central canal of the spinal cord. He not only fails to speak of the difficulty of the intravenous method of injection, but he makes no suggestion whatever as to the technic of such injection. While the latter method may be dismissed in a summary manner, every one of experience knows that to inject into the vein of the young infant is an extremely difficult operation, feasible only in rare instances. As a rule it is impossible.

The chapter on asthma in infants omits some important data, for instance, the relationship of eczema to asthma. The subject of exudative diathesis is neither affirmed nor denied. It is not even mentioned. In the chapter on tuberculosis, the investigations of Gohn and his students, referring to the primary bronchogenic lesion, are not mentioned.

RECOLLECTION OF AN ALIENIST, PERSONAL AND PROFESSIONAL. By Allan McLane Hamilton, M.D., LL.D., F.R.S. Cloth. Price, $3.50 net. Pp. 416, with illustrations. New York: George H. Doran Company, 1916.

"I was born in the year 1848, 'the year of trouble,' when most of Europe was in a turmoil" is the first sentence in the first chapter of this book. Being of a noted family—he was the grandson of Alexander Hamilton, the great federalist—it was natural that the author in his younger days should be brought into contact with noted men of the period—with such men, for instance, as Washington Irving and Tom Moore, and later in life with Pierpont Morgan, Max Bierbohm, Abraham Lincoln, Professor Hutchings, the lightning calculator, and Louis Agassiz. It is the fact of his wide personal acquaintance with men of note both in this country and abroad that makes these recollections interesting reading. One could wish that fewer people had been referred to and that more was said about the prominent ones.

As Dr. Hamilton had a busy professional life in a large city, came in contact with all classes and conditions of men, and in addition has been a world traveler, his recollections naturally cover a wide observation of men and of affairs. The book covers a period of more than half a century and includes comments on exciting times, taking in the Civil War, and memories of active and well known personalities.

The later chapters, constituting about a third of the book, are of special interest to medical men. They are devoted almost entirely to professional matters, and call to mind many incidents that were of national importance or the subject of newspaper notoriety. The Dis Debar case is one of these. This, it will be remembered, concerned a woman spiritualist entrapping a distinguished lawyer. Then, the sensation caused by the necropsy made on the famous mind-reader Irving Bishop aroused much interest at the time, and it will be remembered, in connection with this, that Dr. J. A. Irwin and Dr. Frank Ferguson, who performed the postmortem, obtained some unpleasant notoriety through its being alleged, without any basis in fact, that Bishop was not dead but in a trance when the necropsy was made. There also are mentioned other more or less noted cases in which alienists especially would be directly or indirectly interested.

Of particular interest is the chapter on "Political Murders," in which Dr. Hamilton gives us the alienist's point of view of Booth, Guiteau and Czolgosz, the assassins, respectively, of Presidents Lincoln, Garfield and McKinley.

The author devotes one chapter to a description of his visit to Mrs. Mary Baker Glover Eddy. It is enlightening and so lacking in prejudice or bias that even the Christian Scientist can read it with profit and without taking offense.

While it was written with the lay reader in mind, physicians will find the book both instructive and entertaining, if for no other reason than that the author has made reference to men and affairs in whom and in which they will be interested. And those whose professional life "harks back" more than a quarter of a century will enjoy the reminiscences that carry them to the days of Oliver Wendell Holmes, Marion Sims, Henry B. Sands, T. G. Thomas, J. C. Dalton, Willard Parker, Alonzo Clark and James W. McLain, not to mention others of more recent years who also have passed away.

Social Medicine, Medical Economics and Miscellany

Venereal Disease in the Italian Army

The *Medicina Contemporanea* of Lisbon, Feb. 25, 1917, gives a summary of an account by C. Simon of what has been accomplished in the active Italian army in prophylaxis of venereal diseases. He states that drastic measures are taken to prevent clandestine prostitution. Women, even married women, are forced to submit to medical inspection when the concordant testimony of infected soldiers points to them as the source of their contamination. These women recognized as sources of venereal infection are isolated in special services and are kept there until cured. In the course of two recent months, 277 women were thus arrested and 232 were found liable to transmit infection. The military authorities have ample power to expel from the war zone every vagabond prostitute. On the other hand, the brothels are inspected four times a week, once by an army medical officer. These brothels are installed close to the firing line, there being, for example, three at Cervignano, two at Palmanova and two at Caporetto. The latter place is so close to the line that shells sometimes fall there. The houses are well installed and abundantly supplied with "preventives" and calomel salve. The women are not allowed to admit any men but soldiers. He adds that the establishment of these brothels caused considerable protest, as it was argued that the regions having been deserted by the populace, there is no occasion for the wearied soldiers to break their enforced continence.

The treatment, he continues, can be applied to the men as outpatients where most convenient, near the resting places of the troops. In regard to prophylaxis, very strict measures are enforced; the men are given frequent "sanitary inspections," and men going out and returning from a furlough are examined with special care. Talks, lectures, lantern slides, moving pictures and other means are used to impress on the men the advantages of continence, the dangers of visiting such women, and the consequences of venereal diseases from the point of view of the individual, of the family and of society at large, grave if untreated, but generally benign if treated from the start by a physician. The use of the preventive disinfection stations is also explained. These cabinets for disinfection post coitum are installed in the different camps and abundantly provided with 1:4,000 solutions of potassium permanganate and of mercuric chlorid, with Metchnikoff's salve; 1:200 protargol solution, and syringes for preventive intra-urethral injections. These stations are in charge of a military orderly under the direction of a physician.

The results demonstrate the efficacy of the measures that have been taken and promise still more success when the projected organization is complete. In the course of November and December, 1915, the number of cases of venereal disease recorded was 5,422 and 5,409. In the month of April, 1916, the number was only 3,224.

Professor Stanziale of the chair of syphilography at the University of Naples has been delivering addresses on the "Profilassi celtica" in war time. The addresses were delivered at Rome, Naples and elsewhere before crowded representative audiences. He extolled the measures that have been enforced in the war zone by the military authorities, but emphasized the necessity for supplementing them with coordinated measures throughout the rest of the country where soldiers on leave or passing through are free from all restraints. He

urged that the whole question of venereal prophylaxis should be placed in the hands of a central administrative body with full powers to act, entrusting it with the responsibility of warding off venereal diseases, and of combating in particular clandestine prostitution which now escapes all restraining measures according to the present laws. He advocated the organization of special dispensaries with laboratory equipment for medical inspection of suspects. Inspection at the home, he declared, is uncertain and fruitless. He emphasized the increasing prevalence of extrasexual contagion, especially of syphilis, wherever there is crowding in home or at work, above all in factories where the mutual use of tools, dishes, etc., throws wide the portals to infection. Urgent measures are needed without delay to prevent the further spread of venereal diseases throughout the country, as the men of the troops come and go and industrial crowding becomes more acute. He remarked in conclusion that the war has awakened the public conscience and the state to many salutary reforms, the benefit from which will long outlast the war, and the social problems are not the least to be considered.

Venereal Prophylaxis

Surgeon C. E. Riggs (*U. S. Naval Med. Bull.*, January, 1917) gives some figures as to the effectiveness of artificial venereal prophylaxis among the men at the naval training station at Norfolk. The treatment consists of calomel ointment of about 33 per cent. strength and an injection of some silver salt of moderate strength. A book is kept in which is recorded the date of the treatment and the number of the hour subsequent to the exposure during which the treatment was taken. Great care is taken to obtain accurate information as to the time of exposure. In a record of 3,556 treatments, 67 turned out to be ineffective. Treatment was administered in 674 instances within the first hour after exposure, and no cases developed; in the second hour, 657, with 4 cases developing; in the third hour, 298, with 2 cases; in the fourth hour, 223, with 1 case; in the fifth hour, 156, with 3 cases; in the sixth hour, 285, with 4 cases; in the seventh hour, 247, with 5 cases; in the eighth hour, 359, with 16 cases; in the ninth hour, 272, with 9 cases; in the tenth hour, 190, with 10 cases; in the eleventh hour and over, 195, with 13 cases developing; so that out of the 3,556 treatments, 67 were ineffective, the percentage, from 0.60 in the second hour, gradually increasing to 6.66 in the eleventh hour and after. It is said that owing to the small number of cases on which the percentages are calculated there is no marked period at which it can be said that the treatments cease to be effective. Even the highest percentage, however, does not seem great when it is considered that practically all prostitutes are diseased. The average rate of venereal infection following illicit intercourse is not known, but probably varies greatly in different communities. Taking the highest percentage of infections above, 6.66, at the eleventh hour and after, as the time when the prophylaxis became ineffective, in the 674 cases of the first hour this would give 44.8 as the probable number of cases of disease prevented. Figures for the subsequent hours of treatment can be computed in the same way, subtracting the number of cases of disease actually occurring.

The Mail of War Prisoners

The *Progrès médical* cites statistics published by the Swiss postoffice to the effect that during the month of January, 1917, it received and forwarded to prisoners of war in Austria, France, Germany, Great Britain and Italy a daily average of 426,439 letters and postals, over 20,000 small packages, and 75,889 up to 10-pound packages, in addition to 9,069 postal orders, representing a total of over $15,000. The postal orders were made out again and forwarded. Nearly 4,000,000 packages of bread have also passed through the hands of the Swiss postoffice, representing since the war began a total of 7,115,268 kg., about 16,000,000 pounds. This does not include express packages. The total cash sent in, over 6,000,000 money orders, represents nearly $18,000,000.

Medicolegal

Physicians May Testify in Will Contests as to Competency of Testators

(*In re Golder's Estate* (*S. Dak.*), *158 N. W. R. 734*)

The Supreme Court of South Dakota reverses a judgment admitting a will to probate, for error in the exclusion of evidence including the testimony of two physicians who attended the testator at about the time of the execution of the will, which testimony was excluded on the ground that it was inadmissible under Section 538 of the code of civil procedure. The court says that it must be conceded that an attending physician—often the family doctor who was long acquainted with the testator—is, both from his special training and education and from his opportunity to observe, generally the best qualified of any person to testify in relation to the mental condition of his patient. There can be no presumption of bias. At common law he was a competent witness. A statute rendering him incompetent, being in derogation of the common law, should be strictly construed and held to apply only where the clear wording of the statute requires such a holding. Section 538 provides, among other things, that "a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient." It is to be noted that the section places no limitation whatsoever on the nature of the proceeding wherein attorneys, clergymen and public officials are incompetent, while in the case of physicians it is expressly provided that one is incompetent "in a civil action." The term "civil action" is distinguished from all other proceedings throughout both the South Dakota code of civil procedure and its probate code. Section 12 of the former defines an action as "an ordinary proceeding in a court of justice, by which a party prosecutes another party for the enforcement or protection of a right, the redress or prevention of a wrong, or the punishment of a public offense." Part 2 of the code of civil procedure treats of civil actions, and a reading of it clearly shows that the term as used in such code is restricted to the meaning given in the definition quoted. Is the court justified in extending its meaning as here used so as to include something not clearly within its terms? This question has never before been presented to this court. This is clear from a reading of those cases wherein such evidence was offered in will contests. The decision here is against holding a will contest to be a "civil action," within the meaning of Section 538, but holding that in such a contest the testimony of attending physicians as to the testamentary capacity of the testator at the time of executing the will is admissible.

Validity of Proceedings to Annul License After Failure of Criminal Prosecution

(*State vs. Lewis* (*Wis.*), *159 N. W. R. 746*)

The Supreme Court of Wisconsin says that the proceedings in this case were instituted under Sections 1436e and 1436f of the Wisconsin Statutes to revoke and annul the license granted to the defendant to practice medicine and surgery within that state. In the complaint he was charged with having procured, aided and abetted a criminal abortion on a pregnant woman, and that as a result thereof the woman died. The defendant interposed as a defense to these proceedings an allegation to the effect that he had been tried in the municipal court for Milwaukee County for the same offense, and that judgment had been rendered in his favor. He further alleged that the prosecution on which the complaint herein was based was actuated by malice and ill will toward him. Taking up the latter point first, the court holds that a motion to dismiss the defendant's appeal from an order striking out the allegation in his answer that the proceedings herein were actuated by malice and ill will must be granted, as such an order is not one subject to review by this court by direct appeal therefrom. And to the defense first stated the court holds that a

demurrer was properly sustained. By Section 5, Chapter 426, Laws of 1913, there was incorporated into the law and made a part of what is now Section 1435i the provision: "If any person licensed or registered by said board (i. e., of medical examiners) shall be convicted of any crime, committed in the course of his professional conduct, the court in which such conviction is had shall in addition to any other punishment imposed pursuant to law revoke such license or certificate." The defendant contended that where these proceedings were instituted for the canceling or revoking of his license, and that the same canceling and revoking could have been done in the proceedings in the municipal court in case of conviction, pursuant to this provision of Section 1435i, he was in effect being put in second jeopardy. He also contended that in any event the judgment of acquittal in the municipal court might be pleaded as a bar to these proceedings. But these proceedings are declared by the express language of the legislature to be civil proceedings. They have been so held by this court; that this is a civil action and not one which imposes a penalty or prescribes a forfeiture. The effect of the portion of Section 1435i quoted above, therefore, is simply to give, as an incident to such conviction, power to the court in the criminal proceeding to do directly and forthwith what might be done in subsequent civil proceedings. It therefore does not change the nature of the proceedings now before the court from civil to criminal, and unless it does so change their nature there can be no application of the doctrine of former jeopardy, for that applies only as to criminal proceedings. The court must therefore hold that by the present proceedings the defendant was not put in jeopardy for a second time for the same charge on which he was acquitted in the proceedings in the municipal court. Nor does the court agree with the contention that the acquittal in the criminal prosecution of the charge of abortion might be pleaded in bar to these civil proceedings, the court being of the opinion that the difference between the criminal proceedings and these was such that the general well recognized rule applied, namely, that a judgment in a criminal proceeding is neither a bar to a subsequent civil proceeding involving the same state of facts, nor proof of anything in such subsequent civil proceedings except of the fact of conviction. Proceedings such as these are not in their nature an effort further to punish one who may already have been punished for the same offense, but are a rightful exercise of the power of the state to protect its citizens from physicians of bad character. The trial, therefore, of the defendant in this action did not amount to substantially the same thing as a new trial in a criminal prosecution after an acquittal in it. The court remands the cause for further proceedings.

Follows Rule of Nonliability of Charitable Institutions

(Bishop Randall Hospital vs. Hartley (Wyo.), 160 Pac. R. 385)

The Supreme Court of Wyoming, in reversing a judgment obtained by plaintiff Hartley, says that he fell on the sidewalk and broke a bone in his hip. Subsequently he was taken to the defendant hospital and put under the influence of an anesthetic for the purpose of reducing the fracture. A bed was prepared for him, in which hot water bottles were placed to warm it, and when he was put in the bed the hot water bottles were removed to the corners of the bed, and were left along the edge of the bed. In some manner, not explained in the evidence, one of the bottles got under his shoulder, and caused the burn and injury complained of. Two questions were presented for determination: First, was the hospital a charitable institution? Second, if so, was it liable for an injury to a patient caused by the negligence of one of its nurses, in the absence of allegation and proof of negligence of its officers or managers in the selection of such nurse? The court answers the first question in the affirmative, and the second in the negative. The fact that hospital charged for the accommodation and care bestowed on patients who were able to pay did not change its character. That rule is well established by the decisions. The authorities are also almost unanimous in holding that such institutions are not liable in damages for the negligence of their physicians or nurses, in the absence of proof of negligence in their selection.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
North Dakota State Medical Association, New Rockford, May 9-10.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
Oregon State Medical Association, Portland, June 28-30.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Washington State Medical Association, Spokane, June 17-19.
Wyoming State Medical Society, Casper, May 9.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-Fourth Annual Meeting, held at Nashville, April 3-5, 1917

The President, DR. C. N. COWDEN, Nashville, in the Chair

Responsibility of Medical Profession with Regard to Prevention and Control of Cancer

DR. W. M. JOHNSON, Sparta: The death rate from cancer is increasing at the rate of 2.5 per cent. per annum. In 1881 the mortality was 48.06 per hundred thousand; in 1913 it was 89.03, an increase of 76.01 per cent. Our duty is to instruct the laity to have moles, nevi and keratoses removed in order to prevent the formation of external cancer. The hope of the control of cancer lies in the dissemination of scientific knowledge.

DISCUSSION

DR. J. M. CLACK, Rockwood: It is important to educate the laity as to the outcome of any suspicious growth. Women should be taught that every lump in the breast should be removed, and that every irregular flow from the uterus should be looked on with suspicion.

DR. MARCUS HAASE, Memphis: A fully developed epithelioma is an indictment of carelessness against some medical man because the laity does not recognize these precancerous growths. Any physician can destroy these preepitheliomatous growths regardless of his ability as a surgeon.

DR. A. F. RICHARDS, Sparta: No treatment is so successful as the knife. Every practitioner can remove these precancerous growths from the skin. There is never any reason for leaving a growth of any kind on the skin.

DR. H. L. FANCHER, Chattanooga: Ninty-nine times out of a hundred it is either pain or loss of earning capacity that brings patients to us. The precancerous period, in which we can offer 100 per cent. cures, neither gives loss of earning power nor produces pain. The "cancer doctor" often gets credit for curing a cancer because he applies a remedy in the

precancerous period. Until doctors take up this work where the "cancer doctor" takes it up, we cannot offer 100 per cent. of cures. Surgery offers the only cure.

Inguinal Hernia

Dr. H. L. Fancher, Chattanooga: Inguinal hernia is not an accident, but is of gradual formation owing to a preexisting anatomic defect. Operation is the treatment of choice. The recurrences are less than 5 per cent., and the mortality less than 1 per cent. Success depends more on the individual operator and the finer points of technic than on any one of the so-called classical operations.

DISCUSSION

Dr. John A. Gaines, Nashville: Instead of making the ordinary longitudinal incision in line with the sac, I make a transverse incision. This avoids the plexus of vessels, gives a good exposure, obviates the difficulties of dressing the wound, and avoids infection by carrying the wound down to the scrotal line.

Dr. C. N. Cowden, Nashville: The problem of hernia is one of education. Tell a man wearing a truss how little inconvenience it would be for him to be operated on, and how little danger there is attached to the operation. In 99.5 per cent. of the cases the patients get well without a recurrence.

Leukemia

Dr. William St. John, Bristol: The course of leukemia is variable, not uncommonly lasting ten years, the average being about two years. There are periods of relative ill health and periods of well being. The cause of death is usually asthemia. Quite a number, however, die from septic bronchopneumonia. The treatment recommended is arsenic, salvarsan, Roentgen ray, benzol (benzene, C_6H_6), radium, thorium and mesothorium. Removal of the spleen has been attempted, but usually with fatal results. As the marrow is the primary seat of the disease, it is not to be expected that splenectomy would serve any useful purpose. The treatment at best can only relieve symptoms and prolong life.

DISCUSSION

Dr. John A. Witherspoon, Nashville: In the last six months I have seen two cases of acute lymphatic leukemia, both of them lasting but a short time, in which the lymphocytes were largely in excess. One patient, a young man, had a tonsillar infection; his tonsils were removed, and he began to improve. The man developed a lymphatic enlargement, the spleen became enlarged, he became very anemic, and died in great prostration within a month. He had diarrhea, with hemorrhages of all kinds, vomited blood, passed blood by the bowel, and had the rapidly developing symptoms of an acute lymphatic leukemia. The other case was in a child that died within a month after onset of the disease, which first began as an ordinary diarrhea.

Nonspecific Measures in the Treatment of Certain Infections

Dr. J. O. Manier, Nashville: We have used intravenous injections of a 1 per cent. solution of secondary proteose in the different types of so-called infectious arthritis, gonorrheal epididymitis and erysipelas. We begin with a dosage of from 2 to 4 minims of this solution, increasing daily, in the endeavor to obtain a moderate but definite reaction after each injection. Of our series of twenty-four joint cases, five were acute, six subacute and thirteen chronic. Of the acute cases, two were definite cases of acute rheumatic fever; one of these, in a child of 12 years with multiple swollen, tender joints, fever, acid sweats, etc., cleared up entirely within twenty-four hours after a single injection; while the other, in a woman, with multiple involvement, rise of temperature, etc., was entirely relieved after eight injections, except for some residual pain in one shoulder. In the other three acute cases —all of gonorrheal joints—an average of eight injections was given with moderate improvement in two instances, and only mild temporary relief in the third case. In the six subacute cases, an average of six injections was given with complete relief of all symptoms and a return to normal of the involved joints. In thirteen cases of chronic arthritis there were varying degrees of disability from slight stiffness in the milder cases up to complete ankylosis of the majority of the bones of the body in the most severe case. The injections given these patients varied in number from two to eighteen, with an average of seven treatments per patient. The results were complete subjective relief in five, marked improvement in five, and noticeable change in three. In all our cases we have used a secondary proteose, a midproduct of protein digestion. It is our belief that the results obtained are entirely nonspecific in nature and would have followed a similar use of any foreign protein not too toxic in nature.

DISCUSSION

Dr. James W. Jobling, Nashville: In investigating the serum reactions, we have noticed the changes mentioned. We believe the serum changes are secondary in character so far as they relate to the actual results obtained. If you give a guinea-pig a small dose of horse serum, wait fourteen days, and give it another dose intravenously, the guinea-pig will die immediately from anaphylaxis. Somewhat similar results have been obtained in human beings. We have read of instances in which, following a second dose of diphtheria antitoxin, the patient suddenly collapsed, and occasionally death occurred within a few minutes. This is a state of hypersensitiveness to a particular type of protein. This is now believed to be also an explanation of what is termed an infection, such as typhoid fever. Our work has shown the futility of insisting on autogenous vaccines. It has been demonstrated conclusively that autogenous vaccines are not necessary if we use any type of vaccine in a dose sufficiently large. If we use it in a dose sufficient to get a good general reaction, we obtain as good results as with any specific vaccine.

Dr. I. G. Duncan, Memphis: I always use stock vaccines first, and then, if the results are not satisfactory, I have an autogenous vaccine made. In several cases the stock vaccine seemed to do little or no good, but after the use of an autogenous vaccine the cases cleared up quickly. I want to insist that we try to find out what germ is producing the trouble and give that particular vaccine. If this is done, we shall obtain much better results from vaccine therapy.

Left-Sided Appendicitis

Dr. Jere L. Crook, Jackson: The patient was seized with a severe pain in the left iliac region, followed by nausea and vomiting, and a few hours later by fever. After two or three days he was dismissed practically free from symptoms. Five days later the symptoms recurred with more severity. On examination a tumor was found in the left iliac region at the site of the previous pain. The tumor was tender on pressure and dull on percussion. The temperature was 101 F. Blood examination revealed a leukocytosis of 15,000. A tentative diagnosis was made of left-sided appendicitis and abscess, but on account of the rarity of this condition, a median incision was made which revealed that the line of adhesions extended from the middle line entirely toward the left iliac region. A second incision was then made beyond the outer border of the rectus muscle directly over the tumor. This opened up a large abscess containing a gangrenous appendix which had entirely sloughed off. This was removed and free drainage inserted. The patient made an uneventful recovery.

Traumatic Hysteria

Dr. William G. Somerville, Memphis: To treat successfully the neuroses, whether the so-called traumatic or the plain neuroses, it is of special importance for every physician to understand fully not only the motive but also its mechanism. In the case of a supposed traumatic neurosis, the physician must, first of all, satisfy himself by a careful examination that he has to deal with a neurosis, and that the injury is not in itself the cause, then he must frankly state this to the patient, explain to him the mechanism of its development, and make him see his motive. In other neuroses the motive and mechanism can be arrived at by psychanalysis. The patient should be isolated from the family, so that the work

of the physician will not be counteracted by a sympathetic mother, wife or husband.

A New Species of Streptothrix Isolated in a Case of Rat-Bite Fever

DR. WILLIAM LITTERER, Nashville: Rat-bite fever is a rare disease; only eighty-one cases have been recorded. My case is the first one that has been reported in the South. A streptothrix similar to the Blake-Tunnicliff type was isolated from the blood. The employment of an autogenous streptothrix vaccine has apparently cured the patient.

Surgery of the Prostate

DR. T. G. POLLARD, Nashville: Prostatectomy may be done equally as well by the suprapubic as by the perineal route, but the mortality is lower in the perineal operation. The principal point to be considered is the proper preliminary treatment looking to the residual urine, renal impairment, infection and cardiovascular changes.

DISCUSSION

DR. EUGENE J. JOHNSON, Memphis: I want to emphasize the importance of careful preparation of old men before their prostates are removed. Acidosis is destructive to them. I prefer the suprapubic route because in using a local anesthetic it is better and makes the operative field more accessible.

DR. I. G. DUNCAN, Memphis: In operating on the prostate, my experience with local anesthesia has not been quite so favorable. There is a certain amount of shock and the patient squirms and wriggles.

Roentgen Therapy of Uterine Fibromyomas and Hemorrhagic Metritis

DR. W. S. LAWRENCE, Memphis: I do not advocate Roentgen therapy for all cases of fibroids. Surgery is the method of choice in most cases, and certainly in young women. These cases should be selected carefully. In cases of hemorrhagic metritis, Roentgen therapy is the method of choice.

Syphilis and Internal Medicine

DR. JAMES S. MCLESTER, Birmingham, Ala.: Of 567 consecutive private patients, ninety-four, or 16.5 per cent. gave a positive Wassermann reaction. In addition, seven others with a negative Wassermann reaction gave unmistakable clinical evidence of syphilis, thus bringing the percentage to 17.8. This furnishes a fair estimate of the frequency of syphilis in the better class of patients. Among the sick negroes and poor whites in our hospitals, approximately half have syphilis. It is the etiologic factor in from 90 to 95 per cent. of cases of aortitis. Of sixty-one neurasthenics, twenty, or 32 per cent., gave a positive Wassermann reaction. Examination of the spinal fluid suggested paresis in only one, and yet the other syphilitics may all be regarded as potential paretics. There were twenty-six cases in my series which gave roentgenographic and other appearances of ulcer of the stomach or duodenum, and eight of these gave a positive Wassermann reaction. Five of the latter have apparently recovered under the influence of salvarsan, as well as dietetic and other measures. There were twenty-eight cases of pulmonary disease apparently tuberculous. Six of these gave a positive Wassermann reaction and of these only two showed the tubercle bacillus in the sputum.

Fractures of the Neck of the Femur

DR. WILLIS C. CAMPBELL, Memphis: In old ununited fractures a bone graft is removed from the tibia and placed through the trochanter, neck and head to within one-fourth inch of the articular surface. In hopeless cases the head of the femur may be removed for pain with much relief. Impaction should not be disturbed in the aged. A simple plaster spica or other splint is applied without disturbing the position of the limb. The Whitman procedure is far superior to other methods, although occasionally good results may occur from any. I have seen one instance of firm union by the Hodgen splint, one with simply Buck's extension, and one in which no treatment was given at all other than rest in bed. Early diagnosis and early treatment by the Whitman technic will undoubtedly prevent a large number of hopeless cripples.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

April, LXXV, No. 4

1 Tissue Tone as Index of Vital Resistance, with Special Reference to Prolapse of Uterus. R. R. Huggins, Pittsburgh.—p. 545.
2 Use of Radium in Gynecologic Diseases. H. Bailey, New York.—p. 556.
3 *Cholesterol in Blood of Mother and Fetus. J. M. Slemons and C. S. Curtis, New Haven, Conn.—p. 569.
4 *Simultaneous Occurrence of Carcinoma and Sarcoma in Uterus. G. W. Outerbridge, Philadelphia.—p. 575.
5 Hydatidiform Mole and Chorio-Epithelioma. M. Caturani, New York.—p. 591.
6 Obstetrics: Review and Forecast. A. B. Emmons, 2d, Boston.—p. 636.
7 Attempted Abortion in Absence of Uterine Pregnancy. A. Stein, New York.—p. 644.
8 *Analysis of Vaginal Flora in Late Pregnancy. H. H. Permar, Pittsburgh.—p. 652.
9 *Microbic Flora in Parturient Vagina, Mouth and Rectum of New-Born. A. Hymanson and J. J. Hertz, New York.—p. 662.
10 Right Sided Pain in Young Women. H. S. Lott, Winston-Salem, N. C.—p. 666.

3. **Cholesterol in Blood of Mother and Fetus.**—The significant results obtained by Slemons and Curtis are: (1) In normal cases delivered without anesthesia the difference between the total cholesterol of maternal and fetal blood is accounted for by the quantity of cholesterol esters in the former; (2) the quantity of free cholesterol is the same in both circulations; (3) the placental partition is permeable for free cholesterol and impermeable for cholesterol esters; (4) practical application of blood cholesterol estimations is made in the clinical examination of cases of autointoxication.

4. **Carcinoma and Sarcoma of Uterus.**—Two cases of combined carcinoma and sarcoma of the uterus are reported by Outerbridge. The first occurred in a woman 73 years of age. The uterus was enlarged, owing to the presence of a partly necrotic submucous tumor, which consisted of sarcomatous and carcinomatous elements, and had apparently arisen by sarcomatous degeneration of a submucous myoma, with carcinomatous degeneration of the overlying endometrium. The second patient was 48 years of age. There was a small but definite area of adenocarcinoma in the fundus, removed by curettage. On examination of the uterus after subsequent hysterectomy the site of the small area of carcinoma was clearly distinguishable, but no further carcinoma could be found. A small intramural nodule, lying in the posterior uterine wall, was found histologically to be a myoma with areas of definite sarcoma.

8. **Vaginal Flora in Late Pregnancy.**—A study of the vaginal flora in pregnancy, carried out by Permar according to the ordinary modern routine laboratory methods, reveals a variety of organisms, and various definite strains of each, and is of particular interest in regard to the types of the streptococci and the organisms of the typhicoli group. A relation apparently exists between the ability of various groups of organisms to flourish in an acid medium, and the presence of these organisms, notably the streptococci, the members of the typhicoli group, and the blastomycetes, in the vagina. The presence in the vagina of streptococci giving the carbohydrate reactions of virulent organisms, as well as those of less virulent character but corresponding to forms recognized as having definitely invasive qualities, is comparable to that recognized in the other cavities, in which virulent or apparently virulent organisms are constantly present without giving rise to disease processes.

9. **Flora in Parturient Vagina, Mouth and Rectum of New Born.**—Of forty-two cases tabulated by Hymanson and Hertz, resultes were positive in sixteen and negative in twenty-six. In but four cases were the same organisms found in the maternal passages and baby's mouth and rectum (staphylococcus 3, streptococcus 1). In the other six postive cases the finds were not uniform. In one case the streptococcus was found in the vagina, the staphylococcus in the mouth and the colon

bacillus in the meconium. In a second case the streptococcus and *B. coli* and *Staphylococcus albus* were found in the vagina and streptococcus and *Staphylococcus albus* in the rectum, with an absence of *B. coli*, and no growth in the mouth. In one case the staphylococcus was found in the vagina and the colon bacillus in the meconium. In another case the staphylococcus was found in the vagina, and also in the meconium, the streptococcus being present in the mouth. In a third case the gram-positive bacillus was found in the vagina only.

American Journal of Physiology, Baltimore

April, XLIII, No. 1

11 *Microdissection Studies. Visible Structure of Cell Protoplasm and Death Changes. R. Chambers, Jr., New York.—p. 1.
12 Oxygen Pressure Necessary for Tissue Activity. M. T. Burrows, Baltimore.—p. 13.
13 Physiology of Atrioventricular Connection in Turtle. Influence of Vagi and of Sympathetic Nerves on Its Rhythm Forming Power. C. C. Gault, New Haven, Conn.—p. 22.
14 Conditions Determining Rate of Entrance of Water into Fertilized and Unfertilized Arbacia Eggs, and General Relation of Changes of Permeability to Activation. R. S. Lillie, Woods Hole, Mass. —p. 43.
15 Effect of Starvation on Catalase Content of Tissues. W. E. Burge and A. J. Neill, Chicago.—p. 58.
16 Changes in Amount of Salivary Secretion Associated with Cerebral Lesions. K. S. Lashley.—p. 62.
17 *Studies in Physiology of Respiration. Capacity of Air Passages and Percentage of Carbon Dioxid in Alveolar Air During Rest and Exercise. R. G. Pearce, Cleveland.—p. 73.
18 Gradient in Susceptibility to Cyanids in Meridional Conducting Path of Ctenophore Mnemiopsis. C. M. Child, Chicago.—p. 87.
19 *Carbon Dioxid Acidosis, Cause of Cardiac Dyspnea. J. P. Peters, Jr., New York.—p. 113.
20 Reactions of Kittens After Decerebration. L. H. Weed, Baltimore. —p. 131.

11. Visible Structure of Cell Protoplasm.—The bulk of Chambers' paper deals with results obtained from studies on the protoplasm of *Asterias* and *Arbacia* ova. He claims that protoplasm is a hydrophilic colloid which, in early germ cells, egg cells and protozoa, usually exists in the sol state with a surface layer in the gel state, which is very extensile and contractile and is readily regenerated on injury. Tearing of this surface, if unrepaired, results in the pouring out of the internal cytoplasm and dissolution. A remarkable property of protoplasm is its ability to form a protective gel film not on its external surface but also around an injured area which is in the process of disorganization. The disorganized mass thus insulated is eventually expelled from the cell. A continuous but gradual application of mechanical injury can be sustained by a cell for some time without evidence of harm done. A short but rapid application produces instant local destruction, the spread of which may involve the entire cell. The germinal vesicle of an immature egg consists of a hyaline liquid enclosed in a gel-like membrane. The cytoplasm of an immature egg is comparatively impervious to mechanical tearing, that of a mature egg is very much more senstive. In the mature egg the nucleus behaves as a fluid droplet whose substance is immiscible with the cytoplasm. It may be divided into two droplets which unite on touching. It coagulates with ease on mechanical injury.

17. Physiology of Respiration.—Methods for calculating the dead space and the percentage of carbon dioxid in the expired alveolar air are proposed by Pearce in which the necessary data are obtained by determining the amount of air and the percentage of carbon dioxid in the air of a normal and deep expiration. By the use of these methods, only a small variation in the dead space or the percentage of carbon dioxid could be determined between the conditions of rest and exercise consisting of walking 3½ miles an hour. A recalculation of the data given by Douglas and Haldane, using the proposed method, fails to confirm their conclusion that the capacity of the dead space increases to anything like the extent they claim. The Haldane-Priestley method for the estimation of the carbon dioxid percentage in the alveolar air gives results that are too high.

19. Carbon Dioxid Acidosis and Cardiac Dyspnea.—This paper deals with the discrepancies observed by Peters in a series of cases in a comparison of the carbon dioxid of the alveolar air and that of the plasma. Five normal cases, eleven diabetics, one case of starvation acidosis, one gout, one arthritis deformans with obesity, five acute nephritics, two cases of mild chronic nephritis, eight cases of advanced chronic nephritis, and one of renal tuberculosis and chronic nephritis were studied; in all thirty-five cases, with seventy-six determinations. Fifty-two ratios fall between 0.90 and 1.10; sixty, or 79 per cent., between 0.85 and 1.15. In all but three persons a normal relation was at some time observed, and in two of these only single studies were made. The fifteen abnormal readings were distributed among seven cases; three diabetics, one starvation acidosis, one gout and three chronic nephritics. The alveolar readings in those with normal ratios varied from 19.6 to 47.6 mm. Hg, while the plasma values varied from 21 to 48. The relation, therefore, seems to be independent of the carbonate content of the plasma. In the five normal persons the eighteen ratios obtained all fell between 0.94 and 1.10 giving a maximum variation of 0.10 or a mean variation of 0.04.

In the majority of cases, then, there is a very close correspondence between the two, so close as to suggest that a ratio below 0.85 or one above 1.15 denoted some abnormality in the respiratory mechanism. Nineteen other cases were examined. In all there was cardiac decompensation with more or less dyspnea, and usually some degree of cyanosis. The first five cases had hypertensive nephritis with cardiac decompensation. All had very definite dyspnea. In other words, the dyspnea was not due to an acidosis. The remainder of the cases were simple cardiac cases with dyspnea. Of these only one showed an acidosis in the plasma determinations, and this was very slight. All but two, however, showed an alveolar plasma ratio below 0.85 at some time during their course. Of these, one went as low as 0.86 and the other showed no definite decompensation. In almost all cases with marked improvement, or where the studies were continued into the period of compensation, the ratio increased, approaching or attaining the normal. In some cases, with an interval of improvement a normal relation was established, only to fall away again with development of a new insufficiency. Three cases with extreme pulmonary disease showed a similar disturbance of the alveolar plasma ratio.

American Journal of Roentgenology, New York

April, IV, No. 4

21 Relation of Bodily Habitus to Visceral Form, Position, Tonus and Motility. R. W. Mills, St. Louis.—p. 155.
22 Coolidge Tube Technic with New Type Transformer. A. M. Cole, Indianapolis.—p. 170.
23 Roentgen Diagnosis of Gastrocolic and Duodenocolic Fistulae. M. P. Burnham, San Francisco.—p. 173.
24 Rhinoscleroma and Roentgen Ray. G. M. Mackee, New York. —p. 180.
25 *Improved Cancer Prognosis Justified by Deep Roentgen Treatment. A. F. Holding, New York.—p. 183.
26 Head Leveler for Study of Pituitary Fossa and Accessory Sinuses. G. E. Pfahler, Philadelphia.—p. 193.
27 Roentgenography of Prostate. W. A. Evans, Detroit.—p. 196.

25. Abstracted in THE JOURNAL, Nov. 18, 1916, p. 1549.

Boston Medical and Surgical Journal

April 5, CLXXVI, No. 14

28 History of Military Medicine and Its Contributions to Science. Chamberlain.—p. 479.
29 Eclampsia at Boston City Hospital; Review of Cases of Twenty-Three Years. E. B. Young, Boston.—p. 486.
30 *Remissions in Leukemia Produced by Radium in Cases Completely Resistant to Roentgen Ray and Benzol Treatment. T. Ordway, Albany, N. Y.—p. 490.
31 *Metabolism Study of Case of Leukemia During Radium Treatment. A. Knudson and T. Erdos, Albany, N. Y.—p. 503.

30. Radium Treatment in Cases of Leukemia Resistant to Roentgen Ray and Benzol Treatment.—Surface applications of radium in leukemia, Ordway says, produce striking, indeed remarkable, improvement in (*a*) the blood picture which becomes almost normal, (*b*) in the size of the spleen and glands, which are reduced almost to normal, (*c*) in the general condition of the patient, who, from an emaciated and weak condition, may become plump and strong. The duration of remission is variable; it may last from months to years. The results of radium treatment are not regarded as curative. It is believed, however, to be the safest as well as the most prompt palliative measure in cases of chronic leukemia, whether refractory or not to benzol or roentgenotherapy.

From the results of radium therapy in leukemia it is believed to be the best form of treatment now at our disposal.

31. **Radium in Treatment of Leukemia.**—Knudson and Erdos found that the excretions of total nitrogen, urea, ammonia and phosphates are enormously increased immediately after the action of radium. The uric acid output is only slightly increased compared to the other nitrogenous constituents. Surface applications of radium over the spleen accelerates the disintegration of nuclein tissue, resulting in the above increases. The uric acid which would be expected to be formed by disintegration of nuclein is probably broken up further so that it is not increased. The phosphates show the most remarkable results, increasing as high as 400 per cent., at times, over the excretions at the beginning of treatment.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXVIII, No. 314

32 Recent Epidemic of Infantile Paralysis. H. Emerson, New York.—p. 131.
33 *Placental Transmission; Creatinin and Creatin in Whole Blood and Plasma of Mother and Fetus. E. D. Plass, Baltimore.—p. 137.
34 *Obstetric Significance of Blood Sugar with Special Reference to Placental Interchange. W. H. Morriss, New Haven, Conn.—p. 140.
35 *Changes in Blood Picture after Nucleic Acid Injections. C. A. Neymann, Baltimore.—p. 146.
36 *Leukemia, Pseudoleukemia and Hodgkin's Disease. C. H. Bunting, Madison, and J. L. Yates, Milwaukee, Wis.—p. 151.

33. **Creatinin and Creatin in Whole Blood and Plasma of Mother and Fetus.**—Simultaneously collected samples of maternal and fetal blood were analyzed by Plass by Folin's method for preformed and total creatinin. The determinations on unhemolyzed and hemolyzed whole bloods brought out no definite information with regard to the exchange between mother and child, but when serum or plasma was used, a definite relation was clearly established. The concentration of both fractions is the same under normal conditions in the plasmas which are naturally the fluids concerned in the placental interchange. The plasmas of both mother and child contain the same amounts of preformed and total creatinin. The values are the same as those found in nonpregnant women. The preformed and total creatinin apparently pass between the mother and fetus by simple diffusion.

34. **Blood Sugar During Pregnancy.**—According to Morriss, who examined the blood of eleven patients at various periods of gestation, normal blood sugar values (0.09 to 0.11 per cent.) prevail during pregnancy and the puerperium. During the early part of labor the values are normal, but in the second stage the blood sugar is increased. In twenty-eight cases at the moment of birth the average maternal blood sugar was 0.132 per cent. The rise in the blood sugar is partly due to the mother's voluntary afforts to expel the fetus, and it is accentuated by the use of an anesthetic. At the moment of birth the fetal blood sugar is lower than the maternal. In twenty-four normal cases, in most of which an anesthetic was used, the average fetal value was 0.115 per cent. The concentration of glucose in the two circulations is such that the placental interchange may readily be explained by the process of diffusion; and the lower concentration in the fetal blood assures a flow of glucose from mother to fetus. After obstetric operations higher values are found for the blood sugar in both mother and fetus, and are explained by the influence of the anesthetic. Normal blood sugar values prevail in preeclamptic toxemia though a rise occurs just after a convulsion. Also after repeated convulsions, or with pronounced renal involvement, the percentage of blood sugar may be notably increased.

35. **Changes in Blood Picture After Nucleic Acid Injections.**—Four patients (one represented a depressive paranoid reaction type; one a hysterical reaction type with schizophrenic features; one an undoubted schizophrenic reaction type, and the last a depressive reaction type with marked schizophrenic features) were injected with Lundvall's solution by Neymann. Three main facts stand out: the comparatively short time that the leukocytosis lasts, the gradual increase in doses necessary to produce leukocytosis as the patient develops a tolerance for the drugs, and the decrease in the percentage of hemoglobin and in the number of erythrocytes. The differential counts showed a relative increase of polymorphonuclear cells and eosinophils. No pathologic elements were observed. The psychic behavior of the patient was similar to that which one would expect after any shock. The injections are very painful. The rise in temperature of from 2 to 3 degrees causes a feeling of being ill at ease, with headache and nausea as accompanying factors, and the whole procedure, necessarily carried on in spite of the protests of the patient, is a cause for excitement. As a result of this shock the patients transfer their attention to the difficulties caused by the treatment and place their own internal difficulties more in the background. Thus, the three schizophrenics who showed a catatonic tendency, were more inclined to talk, and were generally brighter during the twenty-four hours directly following a treatment, whereas the depression case, whose worries were centered on the imaginary prospect of being put in jail and castrated, now worried about the time of the next treatment. Though the patients quickly regain their original number of erythrocytes, it takes several weeks for the percentage of hemoglobin to reach the normal figure. These disadvantages would in themselves seem to preclude the continued regular injection of the solution.

36. **Leukemia, Pseudoleukemia and Hodgkin's Disease.**—The evidence which Bunting and Yates claim points toward etiologic significance of the diphtheroid organism found by them in the lymph nodes of these cases is in outline as follows: 1. The constant occurrence of the organisms in Hodgkin's disease and in the allied group under discussion. This is true not only for single determinations but for repeated examinations, as, for example, seven successful cultures from one case over a period of five years (neck, groin and axilla). 2. The occurrence of the organism where it would explain the lesion. 3. The occurrence of the so-called Hodgkin's blood picture in the whole group of cases enumerated, in laboratory animals (monkey, rabbit) inoculated with the living organism, and in one normal individual inoculated with the dead organisms (vaccine). 4. The occurrence of abscesses in laboratory animals (monkey, dog, rabbit, guinea-pig and horse) at the portal of inoculation, with lymph nodes changes similar to those seen in early Hodgkin's disease. 5. The occurrence of complement deviation by the use of the patient's serum and diphtheroid organisms (unpublished series of experiments by Yates and Kristjanson). 6. The occurrence of a glandular reaction and of a skin reaction in patients injected with immune serum resulting from the use of a diphtheroid antigen.

California State Journal of Medicine, San Francisco

April, XV, No. 4

37 Students' Health Insurance at University of California. R. T. Legge, Berkeley.—p. 102.
38 Symptomatology of Hyperthyroidism. H. H. Lissner, Los Angeles.—p. 104.
39 Treatment of Syphilis. G. MacGowan, Los Angeles.—p. 106.

Delaware State Medical Journal, Wilmington

January, VIII, No. 1

40 History of Bodysnatching. L. Eliot, Washington, D. C.—p. 3.

February, No. 2

41 Clinical Manifestations of Pituitary Disorders. C. H. Frazier, Philadelphia.—p. 2.
42 Symptoms and Diagnosis of Gallstones. P. R. Smith, Wilmington.—p. 4.

Journal of Medical Research, Boston

March, XXXVI, No. 1

43 Anatomic Study of Fifteen Cases of Acute Poliomyelitis. W. B. Blanton, New York.—p. 1.
44 *Case of Metastatic Leiomyosarcoma Primary in Uterus. L. U. Gardner, Boston.—p. 19.
45 Influence of Serum on Staining of Bacteria in Suspensions. M. S. Fleisher, St. Louis.—p. 31.
46 Some Morphologic Effects of Prolonged Inanition. A. W. Meyers, San Francisco.—p. 51.
47 *Part Played by Goblet Cells in Protozoan Infections of Intestinal Tract. P. B. Hadley, Kingston, R. I.—p. 79.
48 *Acute Mercury Poisoning. Parallel Histologic and Chemical Study of Renal and Hepatic Tissue Changes as Compared with Rapidity of Absorption and Amount of Mercury Present in Circulating Blood at Time Such Changes Occur. W. H. Burmeister and W. D. McNally, Chicago.—p. 87.

49 Classification of Streptococci. F. G. Blake, Boston.—p. 99.
50 Cultural and Antigenic Differences in Strains of Bacillus Typhosus and Studies in Paratyphoid Group. H. Weiss, New York.—p. 135.
51 *Bacteriologic Observations in Experimental Poliomyelitis of Monkeys. E. C. Rosenow and E. B. Towne, Rochester, Minn.—p. 175.

44. **Case of Metastatic Leiomyosarcoma.**—In Gardner's patient metastases were found in the scalp, left orbit, right breast, abdominal wall, right infrascapular region, and right lumbar region. The left side showed extensive involvement of the first three ribs, apparently extending from the spinal column. Heart: aortic stenosis and microscopic focus of tumor cells in the myocardium. Lungs: numerous metastases scattered throughout the entire substance of both lungs. Liver, kidney and pancreas, numerous tumor nodules. Pelvis: in the position of the broad ligaments were large, nodular masses. Spinal cord: tumor in the upper dorsal region. The patient was 55 years of age. She had been ill four years.

47. **Goblet Cells in Protozoan Infections.**—Hadley presents observations which demonstrate that, in the case of the flagellate protozoan, trichomonas, the cause of an acute malady of several species of birds, notably the turkey (blackhead), the avenue of invasion of the subepithelial tissues is the goblet or chalice (gland) cells located in the fundus of the crypts of Lieberkühn. It is suggested that the passage of the parasites through these cells is not inadvertent, but due to a natural invasive power present in the motile flagellate trophozoite which accomplishes the infection of the deeper tissues.

48. **Acute Mercury Poisoning.**—The experiments made by Burmeister and McNally showed that mercury can be detected chemically, frequently quantitatively, in the blood of animals poisoned with mercuric chlorid, within a very few minutes after it is administered. Degenerative changes, leading to individual cell death, take place rapidly in the kidney and occur simultaneously with the presence of mercury in the circulating blood. In massive intoxication immediate renal changes vary with the size of the dose. Hepatic changes vary as the duration of the intoxication. In smaller doses renal changes vary as the duration of the intoxication. The degree of renal or hepatic degeneration does not necessarily vary directly as does the amount of mercury contained in the circulating blood.

51. See The Journal, April 14, p. 1122.

Kentucky Medical Journal, Bowling Green

April, XV, No. 4

52 Case of Epilepsy. F. M. Stites, Hopkinsville.—p. 155.
53 Acute Anterior Poliomyelitis. W. W. Durham, Hopkinsville.—p. 157.
54 Id. G. Purdy, New Liberty.—p. 158.
55 Cyst of Pancreas. F. L. Koontz, Louisville.—p. 160.
56 Vaccines as Prophylactic and Therapeutic Agents. G. H. Sherman, Detroit.—p. 162.
57 Christian Ethics. E. K. Pike, Falmouth.—p. 166.
58 Transmission of Disease by the House Fly. K. V. Menefee, Cincinnati.—p. 169.
59 Medical Ethics. J. H. S. Morrison, Cumberland Gap, Tenn.—p. 173.
60 Medicine vs. Surgery. C. W. McCollum, Erlanger.—p. 176.
61 Influence of Mouth Infections on Systemic Diseases. J. T. Glenn, Covington.—p. 178.

Laryngoscope, St. Louis

March, XXVII, No. 3

62 Nature and Control of Hemorrhage in Nasopharyngeal Operations. J. Weinstein, New York.—p. 145.
63 Left Handedness as Etiologic Factor in Speech Defects. M. K. Scripture, O. Glogau and A. H. DeBra, New York.—p. 157.
64 Tuberculosis of Larynx and Mouth. W. W. Carter, New York.—p. 170.
65 Chronic Stenosis of Larynx, Tracheotomy; Decanulation after Period of Eighteen Years. C. J. Imperatori, New York.—p. 172.
66 Case of Septic Arthritis Following Submucous Resection of Nasal Septum. C. J. Imperatori, New York.—p. 174.
67 Osteomyelitis of Sinuses of Nose, Complicating Scarlet Fever. H. L. Lynah, New York.—p. 176.
68 Calomel Fumigations in Treatment of Constitutional and Local Conditions. E. J. Brown, Minneapolis.—p. 181.
69 New Safety Pin Closer for Endoscopic Use. H. Arrowsmith, Brooklyn.—p. 187.
70 Two Unusual Cases of Mastoid Disease with Severe Complications; Operations; Recoveries. J. C. Keeler, Philadelphia.—p. 188.
71 Fracture of Tympanic Plate of Temporal Bone. J. C. Keeler, Philadelphia.—p. 192.

Medical Record, New York

April 7, XCI, No. 14

72 Treatment of Acute Stage of Poliomyelitis from Neuro-Orthopedic Standpoint. I. Strauss and P. W. Nathan, New York.—p. 575.
73 Kidney in Obstetric Eclampsia. W. A. N. Dorland, Chicago.—p. 579.
74 Diagnosis of Syphilis of Nervous System. E. L. Hunt, New York.—p. 581.
75 Habit Postures in Relation to Pelvic Conditions. E. M. Mosher, Brooklyn.—p. 583.
76 Some Modern Phases of Psychology. H. W. Wright, San Francisco.—p. 584.
77 Relation of Roentgenography to Diagnosis and Therapy of Non-tuberculous Diseases of Lungs and Pleura. H. Lilienthal, New York.—p. 587.
78 Study of Relation of Volition to Management of Drug and Alcoholic Addictions. C. B. Pearson, Arlington, Md.—p. 589.
79 Syringe Piston. W. V. Gage, Worland, Wyo.—p. 491.

New York Medical Journal

April 7, CV, No. 14

80 Modern Conception of Inebriety. M. S. Gregory, New York.—p. 625.
81 Mentality of Alcoholic. S. E. Jelliffe, New York.—p. 629.
82 Surgery of Nasal Accessory Sinuses. G. M. Coates, Philadelphia.—p. 635.
83 Some Problems of Ureteral Surgery. W. R. Jackson, Mobile, Ala.—p. 639.
84 Incontinence of Urine in Women. W. P. Healy, New York.—p. 642.
85 Condenser Discharge; Its Use in Diagnosis and Therapeutics. F. B. Granger, Boston.—p. 644.
86 Some Phases of Intestinal Stasis and Its Treatment by Physical Measures. W. Martin, Atlantic City, N. J.—p. 645.
87 Contraindications to Use of High Frequency Current. F. de Kraft, New York.—p. 647.
88 Few Words About Liquor of Magnesium Hypochlorite. D. H. Stewart, New York.—p. 648.

Southwestern Medicine, El Paso, Texas

March, I, No. 3

89 Consideration Aside from Appendectomy in Surgery of Appendix. J. Vance, El Paso.—p. 13.
90 Kanavel Tube, Valuable Adjunct in After-Treatment of Abdominal Surgery. F. W. Noble, Tucumcari, N. M.—p. 17.
91 Nomenclature of Tuberculosis. W. W. Dill, Albuquerque, N. M.—p. 31.
92 Pellagra in Rio Grande Valley. W. F. Wittwer, Las Lunas, N. M.—p. 27.
93 Acute Catarrhal Jaundice in Childhood. J. A. Rawlings, El Paso.—p. 36.
94 Hay Fever in Southwest. E. R. Carpenter, El Paso.—p. 39.
95 Public Health Organization. C. C. Pierce, San Francisco.—p. 43.

United States Naval Medical Bulletin, Washington, D. C.

April XI, No. 2

96 *Intravenous Administration of Concentrated Solutions of Soluble Quinin in Malaria and Hemoglobinuric Fever. A. D. McLean.—p. 135.
97 Cases of Hemoglobinuria in Haiti. R. A. Torrance and F. H. Bowman.—p. 141.
98 Quinin and Malaria. W. H. Michael.—p. 150.
99 Mechanical Devices for Ventilation and Air Renewal on Submarine Balilla. J. S. Taylor.—p. 156.
100 Complement Fixation Test for Syphilis Using Human Complement. S. B. Myer.—p. 175.
101 Advisability of More General Use of Wassermann Test in Service. G. F. Clark.—p. 177.
102 *Wright's Solution in Conjunction with Argyrol in Treatment of Gonorrhea. C. H. Dragoo.—p. 179.
103 *Intravascular Injection of Oxygen. J. J. A. McMullin.—p. 181.
104 Iodized Catgut; Drying, Sterilizing and Storing. M. M. Robinson.—p. 219.
105 *Simple Method for Fixation of Thorax. W. A. Brams.—p. 220.
106 Adjustable Head Rest. C. B. Camerer.—p. 221.
107 Case of Megacolon. L. W. Johnson and C. W. Depping.—p. 223.
108 Accidental Explosion of Six-Pounder Projectile while Held in Hand. E. P. Huff.—p. 224.
109 Case of Bichlorid of Mercury Poisoning with Suicidal Intent. F. W. F. Wieber.—p. 226.
110 Gonorrheal Proctitis; Report of Two Cases. W. W. Cress.—p. 228.

96. **Quinin in Malaria and Hemoglobinuric Fever.**—In order to prevent alarming reactions in debilitated patients, McLean says that quinin intravenously must be given in concentrated solutions, that is, 10 to 15 mils, and not in dilute solutions of 200 to 300 mils. In malaria and blackwater fever the use of concentrated solutions of quinin intravenously is the method par excellence. Under ordinary precautions and sterile technic the concentrated solution is practically free from danger. The attack can be cut short and terminated, the patient saved much suffering and discomfort, and in a military service much saving of money, time and services to the government can be made. The results obtained are sufficient to make it not only

a safe method but by far the quickest and surest way of eliminating the malarial organisms from the system.

102. **Wright's Solution in Gonorrhea.**—Irrigations of Wright's solution with injections of argyrol (10 per cent.) have been combined by Dragoo in the treatment of acute gonococcic infections of the urethra. The many small glands which line the urethra act as a trap for the germs in gonorrhea and make local treatment very unsatisfactory. The osmosis resulting from the irrigations would seem to flush out these glands and mechanically remove the gonococci, while the injections of argyrol serve as a germicide for any remaining cocci which resist the flushing process. The irrigations were given, with the patient sitting on a chair, with a soft rubber catheter which had been perforated in many placed for about 2½ inches of its length. This was inserted into the urethra and attached to an irrigator, with the solution flowing about as in the Murphy drip method of proctoclysis. There was no pain connected with this treatment.

103. **Intravascular Injection of Oxygen.**—The experiments reported by McMullin demonstrated that oxygen can be introduced freely into the circulating blood, and that such injections are not necessarily fatal.

105. **Fixation of Thorax.**—The method described by Brams is said to have all the good features of strapping the thorax, with the following additional advantages: It is easily applied and removed, does not irritate the skin, can be adjusted to any chest and with any degree of tightness, is simple and inexpensive, and acts as a splint for the entire circumference of the chest to which it is applied. The appliance consists of a piece of canvas about 30 inches long and about 9 or 10 inches wide. The length should be about 6 inches less than the circumference of the chest. Six eyelets are placed at each end. A pad of gauze is placed under the lacing and eyelets, and the appliance is laced as tightly as may be necessary. No slipping occurs if care is taken when first applied. It may be loosened or tightened at will, without discomfort to the patient, or it may be removed periodically to permit of an alcohol rub or other local treatment.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 17, I, No. 2933

1 *Effects of High Explosives on Ear. J. G. Wilson.—p. 353.
2 Results of Scopolamin-Morphin Treatment During Labor in One Hundred and Fifty Consecutive Cases. W. O. Greenwood.—p. 355.
3 Intravenous Injection of Hypochlorous Acid in Treatment of General Sepsis. J. S. Fraser, A. Campbell and E. D. D. Dickson.—p. 357.
4 Case of Acute Hemorrhagic Pancreatitis, Laparotomy; Recovery. G. W. K. Crosland.—p. 359.
5 *Appendicitis Consequent on Acute Pharyngitis. C. Bennett.—p. 360.
6 Use of Bismuth Iodoform Paste After Bone Grafting. H. S. Brander.—p. 360.
7 Case of Gas Gangrene Associated with B. Edematiens. E. J. Dalyell.—p. 361.
8 Recent Cases of Dysentery. F. H. Edgeworth.—p. 362.

1. **Effects of High Explosives on Ear.**—In considering deafness due to high explosive, Wilson says, one should not only avoid the term "shock," but also so far as possible the terms "hysteria" and "neurasthenia." The cases that are admitted to the hospital suffering from "nerve deafness due to shell concussion" can be divided into three groups: 1. Those with nerve deafness. 2. Those who have had nerve deafness of a varying degree, and who have still the fixed idea that they cannot hear. 3. Malingerers. It is with the first group that this paper is concerned. The cases of nerve deafness which have come under Wilson's observation are divided as follows: 1. Cases of nerve deafness associated with damage to the conducting mechanism. 2. Cases of nerve deafness without any visible or demonstrable lesion in the conducting mechanism when they came under observation. 3. Cases of nerve deafness in which there has been destruction of the cochlea and of the semicircular canals or their nerves. In each of the first two groups the loss may be partial or total; the third always causes total loss.

The symptoms associated with loss of hearing from high explosives fall within that group of nerve diseases called traumatic neuroses. In many cases there is a recognizable physical trauma in the head or elsewhere received during a period of mental excitement. The symptoms are varied and complex. There are present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbance, sweatings, lethargy, sleeplessness and headaches. There is unsteady equilibrium with vertigo. There is a concentric narrowing of the field of vision. In many cases fields of anesthesia were present. In two cases of total deafness there was complete anesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other there was anesthesia on one half of the body and hyperesthesia on the other. Speaking generally, there are here included some symptoms which are frequently grouped under the term "hysteria," others under the term "neurasthenia."

Over eighty cases of nerve deafness due to high explosives were examined and treated. Prognosis is good as a rule, especially in cases in which there is no trauma demonstrable in the peripheral organ, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases hearing returns but slowly, and, so far as observed, not perfectly, even with a normal drum membrane, little if any signs of middle ear inflammation, and a caloric reaction present. As the deafness diminishes there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he be asked to repeat two or three numbers given consecutively, he will repeat the last one; he knows that there were others but did not get them.

5. **Appendicitis Consequent on Acute Pharyngitis.**—By the findings in this case, both at the operation and at the subsequent histologic examination, Bennett is convinced that it is an example of infection of the appendix from an acute inflammation of the fauces and pharynx, and that the infection was conveyed by the blood stream. He believes that when the etiology of appendicitis has been determined, no one universal cause will be found; the cases will resolve themselves into a number of groups with a definite cause for each.

Indian Medical Gazette, Calcutta

February, LII, No. 2

9 Scurvy. T. C. Boyd.—p. 41.
10 Treatment of Diabetes by Alimentary Rest. E. E. Waters.—p. 42.
11 *Surgical Aspect of Ruptured Spleen; Report of Cases. P. H. Hennessy.—p. 46.
12 Gangosa; Report of Case. D. A. Turkhud.—p. 53.
13 Comparative Mortality of Towns in Nadia District. S. L. Sarkar.—p. 58.
14 *Case of Lumbar Puncture for Relief of Teething. T. Jackson.—p. 60.

11. **Surgical Aspect of Ruptured Spleeen.**—Nine cases are reported by Hennessy. All but one were cases of simple rupture caused by trauma; the exception was a stab wound. Five of the patients died. In only two cases was the tear on the external surface of the organ, while the rupture was on the internal surface in seven. In the two cases multiple injuries to the lungs and other viscera were noted. Both patients were fatally injured as the result of great violence. Of the nine cases in which a rupture occurred, two were the result of very severe injury, five patients received blows with fists, one was kicked, and one fell from a tree a height of 8 feet.

14. **Case of Lumbar Puncture for Relief of Teething.**—A strong and robust child, aged 5 months, was admitted to the hospital with a history of high fever of an irregular type and convulsions. On admission the temperature was 99 with rapid pulse and respiration. There were no signs of trouble in either chest or abdomen. In the evening the temperature was 104, there was restlessness, and it was quite evident the gums were teasing the patient. The provisional diagnosis of "pyrexia due to teething" was made. The usual remedies adopted in such case were employed, but without much success in relieving the symptoms. Though the gums were inflamed, it was not thought advisable to lance them as the teeth were not near the surface. The temperature came to

normal after ten days' irregular course, with occasional attacks of convulsions, and remained normal for five days, when the pyrexia returned. It was of the same type as before and complicated by convulsions. There now appeared retraction of the head, and, thinking there might be cerebrospinal trouble, Jackson decided on performing lumbar puncture. About 4 c.c. of cerebrospinal fluid were withdrawn and 2 c.c. of normal saline injected into the spinal canal. Beyond being slightly blood tinged, to the naked eye the cerebrospinal fluid appeared normal and proved to be sterile and otherwise normal on both microscopic and cultural examination. On the day following the lumbar puncture the temperature became normal and remained so till discharge from the hospital a fortnight later. Since the patient was discharged from the hospital until quite recently there was no return of fever or convulsions. Jackson thinks it is not unreasonable to assume that the trouble was cerebrospinal irritation due to teething and that the withdrawal of a small amount of cerebrospinal fluid in some way relieved the irritation and consequently the symptoms.

Lancet, London

March 17, I, No. 4881

15 *Modern Aspects of Heart Disease. G. A. Sutherland.—p. 401.
16 Anthrax; Simulating Cerebrospinal Fever. R. J. Reece.—p. 406.
17 *Latent Period in Acute Perforations of Stomach or Duodenum. D. Kennedy.—p. 410.
18 Mechanical Supports in Plastic Surgery. H. D. Gillies and L. A. B. King.—p. 412.
19 Plastic Repair in War Injuries to Jaw and Face. P. P. Cole.—p. 415.
20 *Antibody Content of Cerebrospinal Fluid in Meningococcal Infection, with Special Reference to Vaccine Treatment. F. E. Taylor.—p. 418.

15. **Modern Aspects of Heart Disease.**—Sutherland cites several cases of acute development of auricular fibrillation and rapid cardiac failure. One of these was a man, aged 46 years, who was admitted to the hospital in a state of extreme respiratory distress. The history was that the same morning, about 8 o'clock, he had complained of a painful feeling of tightness in his chest. This was followed almost immediately by difficulty in breathing, which gradually became worse, until he was unable to move or exert himself in any way. The patient was breathing with extreme difficulty, unable to lie down, and the respirations were slow, with prolonged wheezing expiration. The face, lips and hands were cyanosed. The pulse was feeble and irregular, at the rate of 130 per minute, beats of different strength being mixed up in a hopeless jumble. A pulse tracing showed this well. A venous tracing could not be taken owing to the overaction of the neck muscles. The history subsequently obtained was that the patient had had rheumatic fever thirty years previously, and had been discharged from the navy fifteen years previously because of heart disease. Since then he had been driving a two-horse van, a form of occupation sufficiently arduous. He had had no cardiac symptoms until three weeks previously, when, while lifting a heavy weight, he was seized with a severe pain across his chest and in the left arm, the power of which was lost. He recovered entirely in three days and resumed work, which he continued until seized with the present attack.

When the respiratory distress had quieted down it was possible to make out the cardiac condition. The rate had slowed down under treatment but the action was still irregular. The presence of auricular fibrillation was demonstrated by means of electrocardiograph and polygraph tracings. The heart was much dilated and there were some powerful beats felt, among many weak ones. The signs of mitral and aortic regurgitation were present. As is usual in such cases, rapid relief from all distressing symptoms soon followed after the heart was slowed, and the patient was able to be up and about. The condition of auricular fibrillation persisted during the following two years, after which the patient passed from observation. During this time the patient was always free from urgent cardiac symptoms when his heart rate was controlled by digitalis.

Sutherland states that formerly such an attack of cardiac failure would have been described as due to "broken compensation," and would now be described as due to "the onset of an abnormal rhythm," which in this case was auricular flutter or fibrillation. The term "broken compensation" did not convey much information as to the cardiac changes, and so treatment was guided by the general signs and symptoms—an empirical treatment, even if often singularly successful. Now treatment is directed to the cardiac changes, and more especially to the effect which these produce on the efficiency of the left ventricle. The term "failure of compensation" is wrong in such cases, because the compensatory changes have not broken down. The compensatory changes which have automatically taken place in the heart under these conditions do not break down at the onset of an abnormal rhythm like auricular fibrillation. They are there, and are still efficient if given suitable conditions for their action. This is shown by the fact that if the abnormal rhythm ceases, or if its effects are removed by treatment, the compensatory changes are found to be as efficient in carrying on the circulation as they were before.

17. **Latent Period in Perforations of Stomach.**—To look at these cases of perforation from a proper standpoint, Kennedy says, one must remember that an interval varying in length elapses between the two acts of the tragedy—first the perforation, then peritonitis; and that for treatment to be successful interference must take place before the second act is staged, or, at all events, before it is long in existence. Consequently, early diagnosis is essential. Kennedy considers it convenient to divide the course of events as regards symptoms and signs into three stages; (1) the stage of shock and collapse, (2) the stage of reaction, (3) the stage of diffuse peritonitis. It is frequently during this time of reaction or latent period that the medical attendant first sees the patient after the attack has begun. Consequently his difficulty of diagnosis. How, then, is the diagnosis to be made? (1) from the history of the attack; (2) an increasing pulse rate without corresponding increase in temperature; (3) localized rigidity of the abdominal muscles; (4) localized abdominal tenderness; (5) beginning abdominal distention.

20. **Antibody Content of Cerebrospinal Fluid.**—From a consideration of experimental results Taylor concludes that the weight of evidence goes to prove that bacterial antibodies do not pass over, at least in any quantity, into the cerebrospinal fluid, and that therefore little benefit can be expected to result from the subcutaneous administration of vaccines in cerebrospinal meningitis.

Medical Journal of Australia, Sydney

March 3, I, No. 9

21 *Peculiar Blue Spot Eruption in Soldiers. H. Lawrence.—p. 180.
22 Dermatology on Active Service with Royal Army Medical Corps. R. R. Wettenhall.—p. 181.
23 Duodenal Ulcer Complicating Burns in Infant. I. E. Ashby.—p. 183.

March 10, No. 10

24 Medical Experiences in War Zone. E. T. C. Milligan.—p. 201.
25 Prostatectomy under Local Anesthesia with Narcosis. W. R. Groves.—p. 203.
26 Carbuncle. J. F. Mackenzie.—p. 204.
27 Jaundice in Early Syphilis. G. V. Hickey.—p. 205.

21. **Peculiar Blue Spot Eruption in Soldiers.**—Four cases are reported by Lawrence, in each of which there was an elevation of temperature, varying from 101 to 103 F.; this feverish period lasted about three or four days. On the temperature becoming normal the patients felt comparatively well. From two of the patients meningococci were obtained from the throat; but none of them developed symptoms of cerebrospinal meningitis. A rash appeared on the second or third day. The eruption was macular in type, the individual lesions being of a slate blue or steel gray color, and not palpable, giving rather the appearance of a depression in the skin. The macules varied in size from that of a split pea over the abdomen to that of a sixpenny piece on the lumbar regions and the back of the thighs. The eruption appeared on the abdomen and sides of the chest, small of the back, the buttocks, back and front of the thighs. It was not accompanied by any symptoms. It appeared quickly over the parts mentioned; only a few spots developing later. The spots did not disappear on pressure, although they did not become more evident under pressure with convex glass, as is the

case of purpuric spots. The spots remained of the same color for several weeks (three or four), and then gradually disappeared, some being still noticeable up to the seventh or eighth week.

Sei-I-Kwai Medical Journal, Tokyo

March, XXXVI, No. 3

28 Spinal Anesthesia for Laparotomy. M. Suga.—p. 15.
29 Disinfective Power of Iodin. Y. Takaki.—p. 16.
30 Clinical Experiences of Cyanocuprol. Z. Inoue and K. Hanaoka. —p. 17.

Bulletin de l'Académie de Médecine, Paris

March 13, LXXVII, No. 11, pp. 345-374

31 *Discussion of Measures for Welfare of Factory Workers' Nurslings. (Vœux relatifs à la protection maternelle et infantile dans les usines de guerre.) Doléris and others.—p. 354.
32 Rebuilding the Face after War Wounds. (Des autoplasties en jeu de patience.) H. Morestin.—p. 371.
33 Relapsing Fever in Serbia. (Contribution à la pathologie des Balkans. II.) C. J. Duchamp.—p. 372.

31. **Welfare Work for Factory Mothers.**—After six weeks of discussion of practical measures to recommend to the authorities to protect pregnant factory workers and their nurslings, the Académie finally voted resolutions asking that prospective and nursing mothers in factories, especially munitions factories, should be given work requiring only moderate effort in form and duration. All kinds of work exposing to slow or abrupt traumatism, entailing fatigue and insufficient sleep should be proscribed for them. The half-day system, with six hours as the maximum, should be preferably applied to them, with no night work. Rest from work should be enforced for the last four weeks of the pregnancy. Opportunities for consulting a physician on the hygiene of mother and child should be provided, and the physician in charge of this service should see that provision is made for a change to lighter work or to abstention from work when he deems her work prejudicial to her own or her infant's health. A woman superintendent to look after the hygiene of the women workers should be provided in the factory, as is the custom in England. Provisions should be made for factory workers to suckle their babes, and prizes should be given to those who accomplish their duties as nurses. The pregnant and suckling women obliged by their condition to reduce or stop their work, shall receive an indemnity to compensate the reduction or loss of their wages. The expenses of this are to be guaranteed by the state, working through an *organisme de prévoyance et d'assurance*. Besides rooms where the mothers can suckle their infants, arrangements should be made for keeping the children while the mothers are at work, wherever there is need for this.

Paris Médical

February 24, VII, No. 8, pp. 153-168

34 *Medical Prophylaxis of Syphilis. Leredde and M. Rubinstein.—p. 153.
35 Device to Aid Roentgen Localization of Foreign Bodies. (Le localisateur-guide.) Gudin.—p. 155.
36 *Tardy Tetanus after Pneumococcus Infection. Maclaud and E. Lévy.—p. 163.
37 *Improved Technic for Determination of Sugar. (Dosage du glucose.) P. Vansteenberghe and L. Bauzil.—p. 164.
38 The Income Tax. (L'impot général sur le revenu.) L. Bocquet. —p. 165.

34. **Medical Prophylaxis of Syphilis.**—Leredde and Rubinstein urge the necessity for special dispensaries, with laboratory equipment, at accessible points to diagnose and treat venereal disease. As an important supplementary measure they emphasize the need of training physicians in this special field. They mention that there is a special chair of serology at Amsterdam, in charge of Sormani, and Germany, Denmark, Sweden and Norway also have provisions for teaching serology. At Moscow there is a school of serology that gives diplomas to its graduates. Mastery of the technic for and interpretation of the results of the biologic reactions require thorough training in applied serology.

36. **Tardy Tetanus after Pneumococcus Infection.**—The case reported shows that a medical infection is able to cause the flaring up of tetanus infection over a month after the wound.

37. **Potassium Cyanid Test for Sugar.**—This communication is supplementary to one published last December. The technic is further simplified.

Journal d'Urologie, Paris

1914-1915-1916, VI, No. 6, pp. 601-724

39 *Better Results with Local Anesthesia for Prostatectomy. F. Legueu.—p. 601.
40 *The Blood Findings with Enlarged Prostate May Exclude Cancer. (L'éosinophilie, peut-elle aider au diagnostic de l'adénome prostatique?) F. Legueu and L. Morel.—p. 605.
41 Vesical Concretions after Wounds of the Bladder. (Des calculs vésicaux chez les blessés de la vessie.) F. Legueu.—p. 611.
42 *Stitch Lesions in the Kidneys. (Sur les lésions déterminées par les points de suture dans le parenchyme rénal.) F. Misuraca. —p. 615.
43 *Modified Technic for Fixation of Kidney. A. Brandão, Jr. (Rio de Janeiro).—p. 631.
44 Calcareous Infarcts in the Kidney. G. Bolognesi (Bologna).— p. 639.
45 Cystoscopic Diagnosis of Neoplasms of the Prostate. L. A. Surraco (Montevideo).—p. 653.
46 *Importance of Peri-Urethral Adenoma with Stricture of the Urethra. Idem.—p. 659.
47 *Present Status of Technic for Nephrectomy. G. Marion.—p. 665.
48 *Improved Technic for Catheterization of the Ureters. (Nouvelles sondes urétérales à olive à introduction rétrograde.) M. Gudin (Rio de Janeiro).—p. 681.

39. **Local Anesthesia for Prostatectomy.**—Legueu here brings his report down to date, March, 1917, in No. 6 of the *Journal d'Urologie*. He now has a record of 150 cases of prostatectomy done under local anesthesia alone. At his first communication in the opening number of the same volume, June, 1914, he had had only fourteen cases to report. The results on the whole are much better than when the patient has to bear the strain of general anesthesia besides the prostatectomy. His mortality was only 5 per cent. This is the lowest mortality in any series of his 450 prostatectomies. In other cases, in which for any reason general anesthesia had to be used, the mortality was 10 per cent. The local anesthesia also permits prostatectomy in many cases in which it would be impossible if general anesthesia were required as, for instance, with valvular disease or bronchitis and in the obese with huge prostate. The only contraindications are irritable bladder, from cystitis or a concretion, and sclerous prostatitis without adenoma. Under other conditions, regardless of the size of the adenoma or the mode of access, local anesthesia answers every purpose. And no technic, he says, is as simple, rapid and perfect in its results as the one he uses. He makes no attempt to anesthetize the wall of the bladder directly, but he injects into the bladder 40 or 50 c.c. of a 1:200 solution of novocain, with 5 drops of 1:1,000 solution of epinephrin to each 100 gm. of the solution. He also injects the same solution into Retzius' cavity. The wall of the bladder, thus acted on by the anesthetic from within and from the preperitoneal cavity, becomes insensible so that its incision causes no sensation of pain. When the bladder is thus incised, he works two fingers of the left hand into the organ, face toward the pubis, and with these fingers he guides the long needles, bent at different curves, and injects 5 or 6 c.c. of the solution into the tissues around the enlarged prostate. The first prick with these needles is sometimes felt but not the following. He anesthetizes in the same way the regions between the rectum and the prostate, and the zone in front of the urethra. The whole operation is complete in fifteen minutes, and he has never been obliged to give any supplementary anesthetic by inhalation or in any way. He uses a total of 250 or 300 gm. of the solution and begins to operate almost at once. No by-effects or inconveniences of any kind were ever observed except a little sloughing around the incision. This he traced to the epinephrin, and since he reduced the amount from 25 to 5 drops he has never had this mishap.

40. **Eosinophilia as Excluding Cancer of the Prostate.**—Legueu and Morel noticed eosinophilia of 14 per cent. in a patient with enlargement of the glandular structure of the prostate. This was three years ago, and they have recorded the blood count systematically since in all their patients with hypertrophied prostate. In the cancer cases they found always

subnormal figures for the eosinophils while the polynuclear neutrophils were in numbers much above normal. These characteristic blood findings were not invariable however, as among 150 patients they found one case of malignant disease of the prostate with high eosinophilia, and two cases of simple hypertrophy with low. At the same time, the discovery of eosinophilia is presumptive evidence of simple adenoma. They regard 2.5 per cent. as pathologic, and they warn that various influences may affect the eosinophilia infection, the retention catheter, transient fever or hematuria may modify in a few hours the leukocyte count. The incident once past, the eosinophil count returns to its former figures. The blood count should therefore be made on a day free from fever, the catheter and hematuria. It is instructive to repeat the count every three or four days for two or three weeks. The polynuclear neutrophils are usually within normal range with simple adenoma. With cancer, they average 87 per cent. while the eosinophils average 0.4 per cent.

42. **Stitch Lesions in the Kidney Parenchyma.**—Misuraca reports the results of considerable experimental research on dogs to determine the fate of sutures in the kidneys. He compares his findings with those that have been published by others. He never found appreciable macroscopic lesions but the microscope showed along the track of each suture thread phenomena of necrosis, inflammatory reaction and sclerosis. There was also a transient circumscribed parenchymatous nephritis which reached its height in twenty-five days and then retrogressed.

43. **Improved Technic for Nephropexy.**—Brandão's method is a modification of Albarran's technic which he regards as superior to all others. But it has two drawbacks and he has suppressed these, so that the technic as he has modified it seems exceptionally rational and effectual. The drawbacks in question are the stripping of the capsule from the anterior wall of the kidney. This, he shows, is unnecessary while it entails adhesions with important organs in front. They do not help in fixation but contribute by their weight in dragging down the kidney. He avoids this by refraining from stripping the anterior wall, taking two stitches in the turned back capsule just back of the convex edge. The capsule is cut away over the larger part of the rear wall but enough is left to cover the edge all around. As the capsule is peeled off, it is divided two-thirds of the way down into halves, leaving a broad pedicle below. Each half is then tied separately with catgut to form a stout pedicle, as with Albarran's technic. If the capsule is flabby, it is better to tie it to make one pedicle instead of two. By refraining likewise from peeling off the capsule from the lower pole of the kidney, there is no danger of its tilting. Brandão reports seven cases in which he has applied this technic. The seven women were between 19 and 39 years of age. Necropsy in one case after appendicitis showed the kidney was fastened rather low. This woman of 33 had complained of abdominal pains, vomiting and constipation. Neurasthenia was evident also, with a suicidal tendency. No improvement followed the nephropexy. All the others were completely cured of all disturbances from this kidney. The article is illustrated.

46. **Enlargement of the Prostate in connection with Stricture of the Urethra.**—Surraco describes four cases which demonstrate the falsity of the old saying that stricture and hypertrophy of the prostate never occur together. They show that elderly persons with pronounced symptoms from stenosis of the urethra seldom have the prostate enlarged so that it can be felt through the rectum. It is usually enlarged, however, but it protrudes into the urethra or bladder. After the stricture has been conquered, symptoms on the part of the prostate may become manifest. They may have existed before and been masked by the symptoms from the stenosis.

47. **Technic for Nephrectomy.**—Marion's description of the usual methods of nephrectomy is accompanied by seven illustrations.

48. **Segregation of the Urine from Each Kidney.**—Gudin remarks that if any urine escapes along outside the catheter in the ureter, our estimation of the kidney functioning is liable to be based on mistaken premises, as he explains in detail. To obviate this he has his ureter catheters made with a long olive, broader in diameter than the cystoscope, and introduced backward into the latter. The article is illustrated.

Progrès Médical, Paris

February 24, XXXII, No. 8, pp. 61-68

49 *Paraffin-Film Treatment of Wounds. (Service de l'ambrine.) B. de Sandfort.—p. 61.

50 *Case of Paratyphoid A plus Typhoid. (Cas de paratyphoide A avec rechute en infection éberthienne.) P. Gérard and Fenestre.—p. 65.

51 *Iodoform Mixture for Spraying Wounds. (De l'emploi de la méthode de Mencière.) Cheyrou.—p. 66.

52 Importance of Vegetation for Human Physiology. (Le rôle physiologique de la végétation.) A. Satre.—p. 67.

March 3, No. 9, pp. 69-76

53 Extraction of Projectiles in the Chest. A. Binet and F. Masmonteil.—p. 69.

54 *Intermittent Fever of Syphilitic Origin. A. Vahram.—p. 72.

55 *Cirrhosis of the Liver in Children. A. Satre.—p. 73.

49. See Sollmann's article in The Journal, April 7, 1917, p. 1037.

50. **Mixed Paratyphoid and Typhoid.**—The case described illustrates anew the interest and precision of the agglutination test when no germs can be found in the blood. The case warns further that with mixed infection one of the bacilli is liable to crowd out the other in the culture mediums and give atypical growth.

51. **Spray Embalming of Wounds.**—The spray used is a mixture of 10 gm. each of iodoform, guaiacol, eucalyptol and Peruvian balsam, with 100 gm. alcohol, and ether to 1,000 gm. After the surgical toilet of the wound, this fluid is sprayed forcibly into all the cavities and crevices of the wound. This takes only a few seconds; the hands do not come in contact with the wound; only a small total amount of the mixture is used, while the powerful disinfectants in the measure destroy germs and thus ward off complications. Cheyrou has found this technic, introduced by Mencière, extremely useful, especially on the firing line when the wounded are coming in in large numbers and every minute counts. The mixture has a kind of embalming effect on the tissues, and the dressing does not have to be changed until the man reaches the base hospital.

54. **Intermittent Fever of Syphilitic Origin.**—Vahram has had three cases of this kind recently, in all of which mercurial treatment was followed by complete recovery. One patient was a woman of 30 who for five months had had a daily attack of fever, coming on between 2 and 3 p. m. and lasting for several hours. Each began with a chill, the temperature ran up to 104 F. and then came sweating. Courses of quinin and arsenic had shown no effect. The second patient was a man of 40 who had had malaria for years but no manifestations of it for seventeen years. Then he began to have a chill, fever and sweating every day, the attack coming on about 3 or 4 p. m. and not terminating until about midnight. This had been going on for twenty-five days. The third patient, a man of 38, had been having fever every day toward evening, with sweats and headache. In eight months he lost nearly 27 pounds, and as he had a cough, he had been labeled tuberculous. On suspicion of syphilis the Wassermann test was applied, and the response was positive in each case. Under mercurial treatment clinically normal conditions were promptly restored.

55. **Cirrhosis of the Liver in Children.**—Satre reviews the present state of our knowledge on this subject. His attention had been attracted to it by a case personally observed in a boy of 9. No decision is possible yet as to its exact cause, but the frequency of nephritis with the cirrhosis of the liver in children suggests a common cause for each. Alcoholism and scarlet fever seem to be mainly responsible; he incriminates the former in his case. Scarlet fever is incriminated in England, but, he adds, this disease is so common there that any and every ulterior affection seems to have some more or less direct connection with it. Klein has published eight cases of cirrhosis of the liver developing immediately after scarlet fever. Measles was mentioned in six cases, but only when there was a history of scarlet fever. Palmer declares

that in about 8 per cent. of the cases tuberculosis is responsible. In Stack's twenty cases of cirrhosis of the liver in children, several were tuberculous. In seven cases on record, acute nephritis accompanied the cirrhosis. Only in two of these cases was there jaundice, and ascites was reported only in one of the seven nephritis cases. In Stack's twenty cases in children, only three were girls. The cirrhosis develops with an exceptionally rapid course in children, sometimes complete in a month, but it averaged five months. Ascites was almost constant except in two cases in which syphilis could be incriminated. The fibrous tissue develops so rapidly in children that the portal system does not have time to adapt itself to the cirrhosis, and consequently symptoms become manifest almost from the first. In one case the necropsy findings were exactly like those found in adults, but there was no trace of ascites. This case had been distinguished by nervous phenomena, loss of speech, contractures and extreme emaciation. Similar nervous phenomena were manifest in Satre's personal case described. There was only slight and transient jaundice; in some other cases jaundice did not develop until the last twenty-four hours before death. His little patient presented no complications, but the cirrhosis ran its course to a fatal termination in less than three weeks. The rarity of jaundice is a striking feature of cirrhosis of the liver in children, and seems inexplicable.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 10, XLVII, No. 10, pp. 289-320

56 *Gas Cysts of the Intestine. (Zur Lehre der Pneumatosis cystoides intestini hominis.) K. Schnyder.—p. 289.

March 17, No. 11, pp. 321-352

57 *Diarrhea in Infants from General Infections. (Ueber Durchfälle bei Säuglingen infolge parenteraler Infektionen.) Bernheim-Karrer.—p. 321.

58 Roentgen Treatment as Adjuvant to Heliotherapy. E. Amstad.—p. 335.

56. **Gas Cysts of the Intestines.**—In the first of the two cases described, a man of 46 who had never complained of bowel trouble died with symptoms of uremia. Necropsy disclosed that the walls of the large intestine were set thick with gas cysts, mostly in the muscle and submucosa. The intestinal emphysema was found likewise in a boy of 5 who had succumbed to diphtheria with acute myocarditis. The gas cysts were found likewise in the lymphatics of the small intestine, the mesentery and the mesenteric glands. The tendency to gas cysts has never been diagnosed during life. In some cases the gas cysts caused no symptoms, in others bowel and stomach disturbances brought the patient to the surgeon. In some cases the cysts retrogressed completely after an exploratory laparotomy. Spontaneous recovery is the rule. The proliferating lymphangitis with gas production is analogous to emphysema of the vagina and bladder.

57. **Diarrhea in Infants from General Infections.**—Karrer specifies parenteral infections as affecting the digestive tract, emphasizing the deleterious influence on the digestion of tonsillitis, influenza, pyelitis, etc. The influence seems to be more pronounced the younger the child, but even older children are liable to severe derangement from this cause. The vomiting is often ascribed to a stomach trouble, and unnecessary and harmful dietetic restrictions are imposed. As the children lose in weight the vital processes are unfavorably modified. Coccus infections seem to be the most potent in this respect. He has seen influenza induce in young infants phenomena suggesting dysentery or cholera, even without much catarrh of the upper air passages. This may occur in epidemic form in institutions, and simulate food poisoning. The infants affected are always the youngest or those with digestive disturbance. More frequent than this dysentery form is simple dyspepsia, and this may persist after recovery from the influenza. The severity of the gastro-intestinal disturbance may be out of all proportion to the mild general infection. The affinity of the streptococcus for the bowel mucosa is like that of the diphtheria bacillus for the motor nerves. He gives some charts showing the local and time incidence of the gastro-intestinal disturbances in three infant wards. Over half of the nineteen infants developed bowel trouble. Treatment should be along the same lines as for digestive disturbances of alimentary origin. The lack of substitute nurses in his institution (Zurich) renders it impossible to exclude from the service every nurse who develops a catarrhal "cold." It is impossible also to exclude visitors. New buildings should be provided with glass partitions to keep the visitors from direct contact with the children. In house practice we must protect infants less than a year old against infections, and especially those with unstable digestive apparatus. But it is difficult to keep infection away from infants even in luxurious homes, and diarrhea from parenteral infection is common in the crowded homes of the poor.

As, in his experience, streptococci were found most frequently in grippe, he vaccinated the infants with an anti-streptococcus vaccine when grippe appeared in the institution. Only 9 of the 28 vaccinated children escaped the infection; 9 developed grippe but in 7 it was very mild, with no fever and no diarrhea, and in 3 others there was only an insignificant rise in temperature. Only 35 per cent. of those affected developed diarrhea and only one had much vomiting. The vaccine was borne well, without local or appreciable reaction. The vaccination was preventive in 12 cases and in 16 the grippe was already installed. In the first group seven and eight weeks elapsed before the influenza developed. He regards these tentative experiences as promising, and declares that they encourage continuation and further development of vaccination against influenza in infants.

Pediatria, Naples

February, XXV, No. 2, pp. 65-128

59 *Prophylaxis of Cerebrospinal Meningitis. E. Carapelle.—p. 65.

60 Leukotoxins in the Blood Stream in Internal Leishmaniosis. S. Maggiore and M. Sindoni.—p. 81.

61 Present Status of Polyserositis. (Ascite epato-pericardica di origine polisierositica.) C. Martelli.—p. 89.

59. **Prophylaxis of Cerebrospinal Meningitis.**—Carapelle writes from Palermo that the mortality in a recent epidemic of meningitis there was 92 in 158 cases, but the larger proportion of the deaths occurred in the home; 38 died of 48 meningitis patients treated at their residence. Only 33 per cent. of the total cases were in adults; 16 cases were in infants less than a year old, 49 between 1 and 6 years, and 52 between 6 and 15. The meningitis was generally preceded by an epidemic of influenza, pneumonia or catarrh. Fatigue and overcrowding enhance the predisposition. Carriers seem to be mainly responsible for transmission of the disease. Those in direct attendance on the sick transmit the germs to other carriers, and thus link by link a long chain of carriers is formed. Isolation of the sick in a public hospital or contagious diseases hospital is of extreme importance as it not only prevents the starting of the chain of carriers, but because the patient gets specialist and systematic care. When cases develop in an institution or barracks it is advisable to move into a temporary camp for eight or ten days and to insist on repose for all who have inflammatory lesions in the nose or throat. Search for carriers in the civilian population is fruitless and useless. The reliance in treatment is on the specific antiserum given by intraspinal injection. It should be made in some laboratory on the spot. He gives a map showing the incidence of the disease at Palermo, commenting on the widely scattered cases and the greater number in the more crowded quarters.

Policlinico, Rome

March 4, XXIV, No. 10, pp. 305-336

62 *Appearance of Trichinosis in Italy. (La comparsa della trichina spiralis in Italia.) G. Volpino.—p. 305.

63 Pneumothorax from Tearing of Old Pleural Adhesion. G. L. Fiori.—p. 306.

64 Slight Clinical Importance of the Permanganate Reaction in Urine of the Tuberculous. (La reazione di Moritz-Weisz nelle urine dei tuberculosi.) C. Lollini.—p. 308.

65 Necessity for Services of Dentists for the Troops. (L'odontoiatria potrebbe ridare all' Esercito piu di centomila uomini, ora riformati o dichiarati inabili alle fatiche di guerra.) A. Chiavaro.—p. 311.

February, Medical Section No. 2, pp. 53-100

66 Generalized Echinococcus Disease. (Cisticercosi umana generalizzata. Ricerche cliniche, chimiche e serologiche.) A. Roccavilla.—p. 53.

67 *Vaccine Therapy of Typhoid. IV. V. Pensuti.—p. 83.

62. **Trichinosis in Italy.**—Volpino relates that for some years there have been no reports of the finding of trichina in Italy. But recently there have been quite a number of cases in the Bergamo district. He warns that during war time hygienists should be on the lookout for unusual germs, in addition to the ordinary ones, to protect the country against imported scourges.

67. **Vaccine Therapy of Typhoid.**—Pensuti here presents his fourth report on his experiences with vaccine therapy of typhoid. He began this treatment in 1913 and soon became convinced that better results were obtained with small daily doses of the vaccine. There is a great difference, he says, between the response in the healthy and in the typhoid patient. In the latter the defensive forces of the organism are already mobilized and at work, and hence it is not necessary to give it time to develop antibodies; the vaccine should be given without longer intervals than twenty-four hours. The typhoid patient shows no reaction to the injection except possibly transient rise in temperature. Another principle he proclaims is that the vaccine therapy is not distinct from the natural defense the body is offering the infection but is of the same nature as this. The dose of vaccine can be reduced the more advanced the disease. The body has already very nearly enough antibodies by this time; only a very small amount of the vaccine is needed to bring the total to the effectual point. He regards the relapse as merely one and the same disease, a latent period having intervened. For this reason he keeps up very small doses of the vaccine after defervescence to ward off a possible relapse. Vaccine therapy must be applied only after studying subject by subject and infection by infection, being guided in the dosage by the fever curve, the stage of the infection and the response to treatment, thus continuing, suspending or resuming it in accordance with the individual conditions. He cites a number of cases which sustain the assumption that the vaccine has some chemical action neutralizing the toxins. Late or lacking agglutination was frequently noted in those refractory to the vaccine therapy. He noticed also that over 50 per cent. of those refractory to the vaccine therapy developed suppurative processes.

Riforma Medica, Naples

January 27, XXXIII, No. 4, pp. 85-112

68 *The Blood Findings after Vaccination against Typhoid in the Healthy and in Those with Typhoid. F. Ravenna.—p. 93. Commenced in No. 3, p. 65.

69 *Epidemic Cerebrospinal Meningitis. U. Gabbi.—p. 98. Commenced in No. 2, p. 38.

70 Intoxication from Asphyxiating Gases in War; Eighty-Two Cases. G. Gallo.—p. 100.

February 3, No. 5, pp. 113-140

71 *Epidemic Cerebrospinal Meningitis. M. Cassella.—p. 119.

72 Present Status of Synkinesia and Associated Reflexes. A. Ferrannini.—p. 129.

February 10, No. 6, pp. 141-168

73 The Medical Sciences in Italy. (Rinnovamento.) A. Ferrannini. —p. 141.

74 *Technic and Interpretation of the Findings of Roentgen Examination. (Lezioni di radiologia medica.) M. Bertolotti.—p. 143. Commenced in No. 1, p. 1.

75 Paralysis of Hand, Fingers or Arm after Minor War Wound. C. Pastine.—p. 149.

68. **The Blood Findings after Vaccination against Typhoid.**—Ravenna tabulates the blood findings in thirty healthy men from two to ten months after vaccination against typhoid, as also the average immediately after the vaccination. It seems to affect the blood much as does actual typhoid, but the blood gradually returns to normal, the different elements recuperating after different intervals. The proportion of neutrophil polynuclears persisted low for several months in about half the patients, and in 50 per cent. of the men the eosinophils were within normal range; in 33 per cent. they were below 2 per cent. and in 20 per cent. above 5 per cent. The lymphocytes were above normal in 50 per cent., and below in 16 per cent.

69. **Epidemic Cerebrospinal Meningitis.**—Gabbi says that among the affections liable to be confused with epidemic cerebrospinal meningitis are tetanus, tuberculous meningitis, malaria of the pernicious type with convulsions, influenza of the cerebral type, and the meningitic form of acute pneumonia. Tuberculous meningitis usually develops more insidiously, and the tuberculin reaction and profuse sweats aid in differentiating, as a rule, the tuberculous and epidemic types. In malaria, there is generally enlargement of the spleen. With influenza, the catarrhal condition of the upper air passages suggests the true nature of the trouble. Inquiry as to other cases of meningitis in the neighborhood may disclose its epidemic form. In case epidemic meningitis is suspected, the patient should be isolated without waiting for absolute certainty, and carriers should be sought in the environment. Some recent experiences in the troops during an epidemic demonstrated that the epidemic died out on removing the troops from an infected barracks and living in tents for a time. Formaldehyd seems to have proved the most effectual disinfectant. Serotherapy is lauded by some, while others have had disappointing results. Gabbi declares the difference in results probably was due to the difference in strains of the meningococci. The homologous serum should be used whenever possible. Pellegrino says that the dosage should be proportional to the severity of the case.

71. **Epidemic Cerebrospinal Meningitis at Naples.**—Cassella reviews the recent epidemic of meningitis at Naples, a total of 171 cases, nearly all in the winter and spring of 1915 and of 1916. The mortality was over 58 per cent. in the first period and over 51 per cent. in the second. No case of familial contagion, he says, was known, the experiences in this epidemic confirming the assumption that cerebrospinal meningitis is a disease that is rarely propagated by the sick. Bellei thinks that the explanation of this is that during the period in which the germs in the nasopharyngeal secretions are virulent, the patient is usually in a comatose state, not speaking nor sneezing nor coughing, and thus not scattering the germs about him. Cassella's patients, however, were seldom comatose, and one attendant, at least, in waiting on them, became a carrier. One of the patients was a teacher, but no cases developed among his pupils, showing that the prodromal stage is not infectious. Cassella examined 412 of the soldiers to detect carriers, and found 3.9 per cent. harboring the germs. These were isolated at the military hospital until negative findings. None of them developed meningitis. He thinks it probable that the meningococcus acquires special virulence in a case of meningitis and thus sets up a new train of carriers. These feel no bad effects from them until their resisting powers become depressed from any cause; then they are liable to develop the disease. The healthy carriers of the virulent germs are not numerous, and the germs lose their virulence before long. After a few sporadic cases and a long interval, suddenly the disease may develop in epidemic form, the cases widely scattered. No other disease, he declares, shows so plainly the influence of some special conditions affecting the germs themselves, to enhance their virulence, and affecting the individual predisposition. Many of the first cases were in new recruits. The changed mode of life and fatigue from the military training may have cooperated in enhancing the predisposition. In the civilian population the cases were almost exclusively in the poorer classes. He gives a chart showing weather conditions, but no connection is apparent between them and the epidemic. The severer cases were all in the earlier period.

74. **Medical Radiology.**—This is the sixth and last instalment of Bertolotti's study of the technic and interpretation of the findings in Roentgen examination of the spine and chest, especially with congenital anomalies of the skeleton. A number of typical cases are described, with the Roentgen findings. He urges the importance of study of the normal and pathologic anatomy as shown in roentgenograms. This is indispensable for the orthopedist, especially study of the laws governing the formation of bone, and the numerous deviations from these laws in congenital anomalies of the skeleton.

Brazil-Medico, Rio de Janeiro

February 17, XXXI, No. 7, pp. 51-62. Cruz Memorial Number

76 Life and Work of Oswaldo G. Cruz. C. Chagas and others.—p. 51.

February 24, No. 8, pp. 63-72

77 Brazilian Beetles. II. (Tetrameridae brazileiras.) L. Travassos. —p. 65.

March 3, No. 9, pp. 73-80

78 Brazilian Endoparasitic Nematode Worms. V. (Trichostrongylinas brazileiras. Oswaldocruzia n. gen.) L. Travassos.—p. 73.
79 Heliotherapy in Brazil. A. Moncorvo Jr.—p. 74. Continuation.

Siglo Medico, Madrid

March 3, LXIV, No. 3299, pp. 129-144

80 *Clinical Value of the Determination of Pepsin in the Stomach Content. T. Hernando and T. Alday.—p. 130. Commenced in No. 3298, p. 114.
81 *Correction of Facial Deformities. (Las restauraciones bucofaciales.) D. F. Aguilar.—p. 138. Commenced in No. 3296, p. 90.

80. **Clinical Importance of Determination of Pepsin in Stomach Content.**—Hernando and Alday found the Mett technic most exact and the Fuld-Levison the simplest, but for practical purposes, they say, Boas' method is sufficiently reliable. They report that in 10 cases of anachlorhydria, pepsin was found always present in their tests although in proportions much below normal, and not paralleling the hydrochloric acid content. Each should be determined separately in watching over the progress of a stomach affection. In 10 cases of noncancerous hypochlorhydria, the proportion of pepsin was unusually low in some but normal in others. In 22 cases of gastric cancer, no pepsin could be detected in 3 cases by the Mett technic; in 16 only small amounts; in one it was normal and in 2 above normal. With the Fuld method in 29 cases no pepsin could be found in 6 cases, very little in 21, and the findings were normal or above normal in one case each. In 18 cases there was a deficit of hydrochloric acid and in 6 it was present only in moderate amounts. In 30 cases of hyperchlorhydria (Mett) the pepsin content was normal or subnormal in 4 cases each and in 22 above normal. With the Fuld technic, in 35 cases, it was normal in 12 and above the normal range in the others.

In all the 37 gastric or duodenal ulcer cases, and in 34 of 35 (Mett) cases and in 48 of 50 (Fuld) cases of cicatricial stenosis of the pylorus, the pepsin was much above normal. Hence this finding should suggest the possibility of an ulcer. It is possible that in some of the hyperacid cases with high pepsin content there may have been some undetected ulceration. Certain measures known to influence ulcer favorably may owe their efficacy to their action on the pepsin, rather than on the acidity, to which it is generally attributed. This applies particularly to sodium chlorid which seems to have an inhibiting influence on pepsin. Inert powders, to adsorb it, have a similar inhibiting action. Their experience indicates that the pepsin content may aid in the prognosis with hyperchlorhydria, the outlook being better when the pepsin content is low. They warn that pepsin should never be given alone or with an alkali. It requires an acid medium to be effectual. In chronic gastritis of the catarrhal type, tending to atrophy, they found the pepsin content low as a rule.

81. **Correction of Facial Deformities.**—Aguilar's profusely illustrated article gives the "before and after" aspects of numerous cases of congenital or acquired deformities, shell face, fractured jaws, etc., given treatment at the Madrid School of Odontology. He discusses various principles involved, saying that in recent years, and especially in Spain, odontology has developed into a brilliant branch of medicine.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

1916, XVI, No. 1, pp. 1-212. German Edition. Last indexed March 17, p. 885

82 Proportional Weights of Bones of the Feet in Different Races. (Gewichtsproportionen der Fussknochen bei verschiedenen Rassen.) K. Hasebe.—p. 1.
83 A Strain of Atypical Actinomyces. S. Yamakawa.—p. 17.
84 *Necropsy Findings in Case of Paroxysmal Hemoglobinuria. J. Idei.—p. 35.
85 Roentgen Examination of Healthy Stomach in Fifty Japanese. Y. Kato and J. Nakamura.—p. 51.
86 *Nerve Stretching. (Ueber die Nervendehnung. Experimentelle und klinische Untersuchung.) G. Takimoto.—p. 73.
87 The Physiology of the Retina and Its Behavior under Chemical and Physical Stimuli. (Zur Kenntnis der Bewegungsvorgänge in der Netzhaut.) N. Kumagai.—p. 137.

84. **Necropsy Findings in Case of Paroxysmal Hemoglobinuria.**—Idei's patient was a fish merchant of 36, and the attacks of hemoglobinuria lasted for ten days and were followed by reduction of the daily output of urine to from 8 to 40 c.c. This reduction in the amount of urine kept up for ten days, the man finally dying from anuria after one such attack. A congenital defect in the aortic valve was found at necropsy. The hemoglobin was accumulated mostly in the convoluted tubules and below, both kidneys presenting indications of acute parenchymatous nephritis.

86. **Nerve Stretching as a Therapeutic Measure.**—Takimoto devotes sixty-six pages to his account of his experimental and clinical research on nerve stretching. It is accompanied by three colored full-page plates. The latter show the histologic changes in a nerve after it has been stretched. The axis cylinder as it is stretched breaks up into short segments, with gaps between. This interrupts the continuity of the nerve almost as if it had been cut across. This segmentary interruption of the continuity of the nerve is accompanied by bleeding, hyperemia, tearing of the fibers of the connective tissue, and enlargement of the lymph spaces in the epineurium and perineurium, while the segmented nerve fibers degenerate. All the therapeutic effects of nerve stretching can thus be readily explained, he says, as due to blocking of the nerve. From the theoretic standpoint, the measure is of only palliative value, and uncertainty as to the outcome and recurrences must be counted with. At the same time, nerve stretching, properly done, is almost ideally successful in practice, especially in combating unbearable pains. It arrests them even in cases in which no other measure gives relief. He regards it as indicated in all such cases when everything else has failed and the pains are very violent, and when the functional disturbances liable to result from the nerve stretching would not be of such a nature as to entail much disturbance. It seems to be adapted to any and every affection connected with nerves. With affections of the central nervous system, pains and spasms in the periphery can be arrested by the nerve stretching, but this of course does not act on the central affection. He adds that sensory and motor disturbances at the periphery are also amenable to nerve stretching. With peripheral nervous affections, nerve stretching is indicated only in the period of irritation; under other conditions it is liable to be directly harmful. Erythromelalgia is a favorable field for nerve stretching, as this abolishes not only the pain but also the redness and the swelling. The effect realized confirms the assumption that erythromelalgia is caused by abnormal conditions in the vasodilators. The bibliography appended nearly all dates from 1883 or before; Neri's article on stretching the sciatic nerve is the only original article cited published in this century.

Hospitalstidende, Copenhagen

February 21, LX, No. 8, pp. 173-196

88 *Splenectomy with Certain Internal Diseases. (Om Miltexstirpation ved Polyglobuli, Morbus Banti og Icterus haemolyticus.) T. Rovsing.—p. 173. Commenced in No. 7, p. 149.

88. **Splenectomy for Internal Diseases.**—Rovsing remarks that removal of the spleen is a comparatively simple and harmless measure when the spleen is sound and has been injured in some accident or is the seat of some buried morbid process. Splenectomy, however, is quite a different matter when the enlarged spleen is adherent to other organs. In malaria and leukemia the results have been so disappointing, he continues, that splenectomy has certainly played out its part in these affections. In polycythemia, Banti's disease and hemolytic jaundice the outlook is more promising. He reports in detail five cases in which he removed the spleen on these indications. The first patient was a man of 42 with symptoms suggesting chronic gastric ulcer and great enlargement of the spleen. The blood count showed 9,000,000 reds and 12,500 whites, hemoglobin 105, and the Pirquet test was strongly positive. The spleen was found studded with nodules which confirmed the assumption of tuberculosis of the spleen and he removed it. Numerous adhesions made this very difficult, and persisting capillary bleeding followed to which the patient succumbed. Rovsing has been convinced by this case that splenectomy is absolutely contraindicated with polycythemia

if the spleen is adherent to other organs over any extent. Uncontrollable hemorrhage is almost certain to follow. The nodules on the spleen in his case proved to be merely infarcts, but there were calcified patches in the liver, a tuberculous focus in one kidney and a simple ulcer in the stomach.

The second patient was a man of 23 in the third, advanced, stage of typical Banti's disease, with atrophic cirrhosis of the liver and ascites. He had also had hematemesis on several occasions which had entailed extreme anemia. As splenectomy seemed to be the only chance, the patient insisted on it in spite of Rovsing's advice against it. The spleen weighed 1,725 gm. and its removal was difficult on account of adhesions, but the patient began to improve almost at once and the ascites has not returned. The man has kept well during the two months to date, and the blood picture seems to be normal. Rovsing ascribes much of the success in this case to his special incision which gives ample access with the least injury to vessels and nerves. It starts in the epigastrium on the middle line, parallels the left costal arch, 3 cm. below it, to the middle of the left rectus muscle. The incision then swings downward, slitting the upper wall of the sheath of the rectus, along its median line, until the incision reaches the level of the anterior superior spine of the ilium. Although the incision is so long, yet it is not easy to deliver the spleen through it if it has to be first separated from adhesions. He warns further that in Banti's disease the enlarged spleen may push the liver forward and thus give the impression of extreme enlargement of the liver when this is not the case in fact. He had this experience in an earlier case of Banti's disease. As soon as the spleen was removed, the liver slid back into its place and was seen to be of normal size. This latter patient died three months after the operation from thrombosis of an artery passing from the splenic artery to the fundus of the stomach. The Banti's disease in this case was in an early stage. He operated by Mayo's two-forceps method, and he is inclined to attribute the thrombosis to injury from this technic. He has discarded it since, and now works with his gloved hand, separating adhesions cautiously with his fingers, as he describes in detail.

His three other patients were men of 60 and 28 and a woman of 39. All had typical hemolytic jaundice of long standing, with extremely fragile reds and much enlarged spleen. Each had long been incapacitated by their anemia and jaundice. Splenectomy brought a complete and apparently permanent cure of all their disturbances although the reds are still fragile. The enlarged spleen had been destroying too many reds, and as soon as the spleen was removed the numbers of reds returned to normal. The spleen in these hemolytic jaundice cases, although enlarged, was apparently normal, while in the polycythemia cases the spleen showed evidences of fibrous degeneration. The adhesions suggested some old infectious process as responsible for the abnormal behavior of the spleen and possibly also for the fragility of the reds. In conclusion Rovsing mentions that, with the cases here reported, nine cases of splenectomy for hemolytic jaundice have been published in the Scandinavian countries. Adding these to the forty-eight recently compiled by Elliot and Kanavel, brings the total to fifty-seven, with fifty-five recoveries. He adds that Banti's first patient has been free from recurrence during the eleven years to date.

Hygiea, Stockholm

February 28, LXXIX, No. 4, pp. 145-192

89 Treatment of Tuberculous Spondylitis. (Om behandlingen av den tuberkulösa spondyliten med särskilt avseende fästat vid Albees operation.) S. Johansson.—p. 145.

90 *Alcohol Content of the Urine in the Intoxicated. (Några matningar av alkoholhalten i urinen hos berusade personer.) E. M. P. Widmark.—p. 158.

91 Necropsy Findings in Previously Published Case of Sarcoma of the Carotid Gland. (Ett fall av karotiskörteltumör.) G. Grönberger.—p. 169.

90. **Alcohol Content of the Urine in the Intoxicated.**—Widmark states that his modification of Nicloux' test for alcohol in the blood enables the alcohol content of the urine to be determined rapidly and conveniently. He does not give the technic of the test here, referring to his recent article on the subject in the *Skandin. Archiv für Physiologie*, Vol. 35. He tabulates the findings in thirty-seven intoxicated persons, emphasizing that the presence of the alcohol in the urine is the result of a diffusion process, and does not depend on the secretory capacity of the kidneys. The proportion of alcohol in the urine can never be higher than that in the blood, and consequently if the alcohol content of the urine is 4:1,000, for example, we can be confident that the concentration of the alcohol in the blood during the few hours preceding the test must have at least reached this figure. One table shows under sixteen headings the various features of twenty-seven cases, all but eight habitual drunkards. The highest figure was found in a man of 29 picked up on the street intoxicated but not addicted to alcohol; it was a question whether he was sick or intoxicated. He was not an alcoholic. The alcohol content of the urine was 5.7:1,000. It was 5:1,000 in a man of 51, known to be a habitual drunkard. One man of 60, not addicted to alcohol, had drunk a liter of brandy in an attempt to commit suicide. His urine showed alcohol content of 3.7:1,000. In a prostitute of 22 who had taken six glasses of punch, the urine, six hours after she had been brought into the station, showed 2.3:1,000 alcohol. One man known to be a habitual drunkard was brought in supposedly drunk but there were only traces of alcohol in the urine, and he proved to be suffering from pneumonia. In another case the man was not addicted to alcohol but seemed to be intoxicated. The urine showed only 0.1:1,000 alcohol, and the man confessed that he had taken "nerve drops" with suicidal intent. The data tabulated indicate that symptoms of liquor intoxication can scarcely appear until the concentration of alcohol in the urine is over 1:1,000 at least.

Ugeskrift for Læger, Copenhagen

February 1, LXXIX, No. 5, pp. 185-224

92 *Physical and Dietetic Treatment of Constipation. (Bemærkninger om Obstipationens diætetiske og fysikalske Behandling.) A. Borgbjærg.—p. 185.

92. **Dietetic and Physical Treatment of Constipation.**—Borgbjærg warns that we must not forget that a number of factors may cooperate in producing constipation, such as reduction in the amount of feces, harder consistency, delayed passage through the intestines, infrequent desires, and difficult defecation. The Roentgen rays have shown that mechanical obstacles, such as adhesions, overlong mesentery, enteroptosis and movable cecum do not necessarily entail constipation. The passage through the colon may occur quite normally in spite of them. More important is a weakness of the muscles involved in defecation, or overstrong action of their antagonists. In the great majority of cases there is no mechanical cause to explain the constipation. He has known cases of severe constipation in strict vegetarians and he does not approve of continuing exclusively coarse foods too long. How long the patient can be allowed to go without stool is a question to be decided in the individual case, watching the general condition, exploring the rectum and palpating to see that there is no accumulation of feces. Under these conditions he thinks there is no risk in letting the patient go a week at least; thirteen days was the longest limit in his experience.

He never realized the importance of massage as long as it was applied in the patients' homes and he saw the patients only now and then. But since he has been having the patients under his constant supervision in his private clinic, he has become more and more convinced of its great value as an aid in the treatment of constipation. He always has it combined with gymnastic exercises, especially abdominal breathing exercises. When the constipation is the result of retention of the feces in the sigmoid flexure region or rectum or of inability to expel the feces arriving in the rectum, these measures and dieting do not seem to do much good. It is possible that benefit might be derived from internal massage of the rectum or vibration treatment or intrarectal faradization, as Boas commends. He has not had much experience with these measures but thinks they are promising. He says further that the normal position for defecation is undoubtedly the squatting position. The depression, lassitude, etc., which are usually ascribed to autointoxication in case of constipation, he thinks are more often merely the result of worry over the supposed evil effects of the defective intestinal functioning.